PHOTO LAB
PIX NUMBERED

REPORT

of the

SAN FRANCISCO WATER DEPARTMENT

FISCAL YEAR

1959-1960

J. H. TURNER
General Manager and Chief Engineer

REPORT

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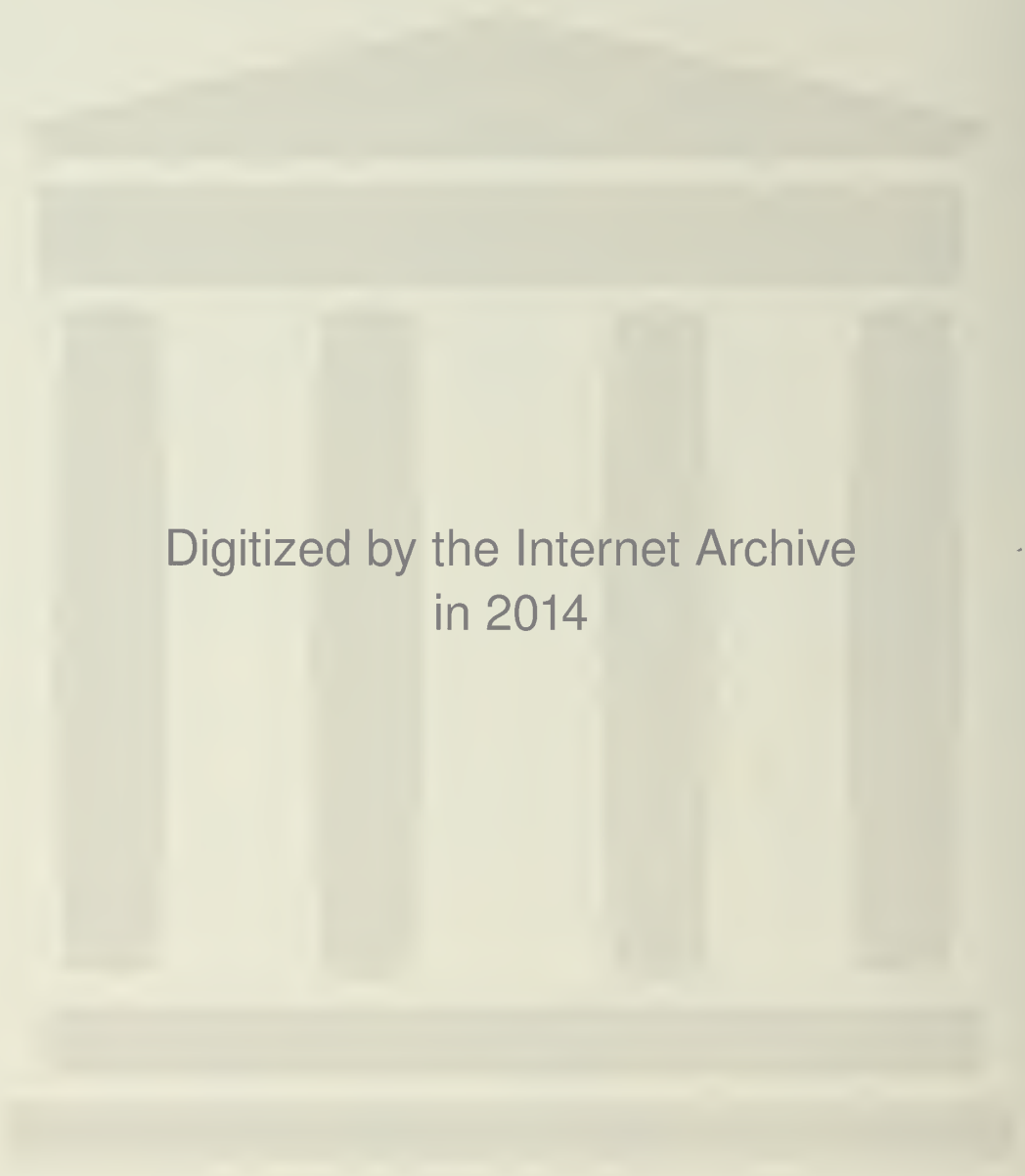

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SAN FRANCISCO WATER DEPARTMENT
REPORT FOR FISCAL YEAR
JULY 1, 1959 TO JUNE 30, 1960

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CLEANING LOMBARD RESERVOIR COPY NEG. X-6270
Constructed in 1860
It is the oldest distribution reservoir in use. FROM - X-5512 4-6-60

SAN FRANCISCO WATER DEPARTMENT

J. H. TURNER
General Manager and Chief Engineer

The program of improving the quality of the water provided our consumers has been continued during this fiscal year. Additional modern chlorination facilities have been installed and contracts awarded for others. Water main flushing, inspection of checkvalve assemblies, cleaning of reservoirs, and checking of watershed areas for sources of possible pollution or contamination and elimination of sanitary defects found, are some of the activities carried on. These precautions and corrective measures, together with the constant vigilance of the Purification Division has resulted in a satisfactory bacteriological record during the year.

The rainfall during this season on our local watersheds varied from 32% to 44% more than the previous season but was only 62% to 76% of normal. As a result there was very little production of water in the local watersheds.

This dry season following a drier season caused an increase in water consumption, with an average of 167.8 million gallons being consumed daily throughout the water system, representing an increase of 10.2 million gallons daily, or 6.5 percent over the preceding year. The San Francisco consumption area (which includes a part of the suburban consumption in some 47 square miles in Northern San Mateo County) averaged 104.4 million gallons daily, an increase of 3.8 million gallons daily, or 3.8 percent. The suburban consumption area used an average of 63.4 million gallons daily, an increase of 6.4 million gallons daily, or 11.2 percent over the previous year.

An all-time peak in water consumption for the entire system occurred on June 2nd with 274.0 million gallons being used, as compared to the previous all-time peak of 246.0 million gallons which occurred June 29, 1959. The 274.0 million gallon figure is 63 percent more than the yearly average of 167.8 million gallons per day.

The day of minimum demand occurred on Februrary 21, 1960 when 101.7 million gallons were used, or 60.6 percent of the yearly average.

The highest demand for any month occurred during June, 1960 with an average of 217.6 million gallons daily being consumed during the period, establishing an all-time record for monthly water use.

The record-breaking year for water consumption was reflected in the highest water sales in the Department's history, amounting to $16,595,770, which figure includes the water used by municipal non-paying accounts amounting to $949,682. This

represents an increase of $913,883 or 5.83 percent over the previous year. Credit allowances totaling $30,816 which were applied to customers' bills are not included in the total of $16,595,770. Accounts within the City increased by $409,872, making total net sales within the City of $10,863,110, which is 65.5 percent of the value of Department's total water sales. Suburban net sales increased $504,011 for a total of $5,732,660 or 34.5 per cent of the value of the total water sales. The above figures represent the amount of billing for water during 1959-60, including the municipal non-paying accounts, and do not represent the amounts collected during the fiscal year.

The miscellaneous income of the Department from sale of lands, rentals, interest earned, sale of walnuts, etc., totaled $540,654, making a total gross income for the year of $17,136,424, of which $949,682 represents non-paying San Francisco municipal accounts, resulting in a gross cash income of $16,186,742.

In addition to the high rate of water use due to the dry season, some of the increase can be attributed to the increase in population of the service area and to the increase in per capita consumption. The number of active accounts increased from 154,730 on June 30, 1959 to 155,066 on June 30, 1960, a gain of 336 accounts during the year.

During the year 106.5 acres of land were sold and 21.4 acres purchased, making a net decrease of 85.1 acres which resulted in a total of 62,559.2 acres under the jurisdiction of the Department on June 30, 1960.

Negotiations carried on with the Alameda County Assessor's Office regarding taxes on the Water Department's facilities were brought to a successful conclusion toward the end of the year. The total assessed value of this Department's lands, water rights and personal property in Alameda County is some $508,000 less than last year. At the tax rate used last year, this indicates an annual saving to the Department of about $30,000.

Agreements for the Sale of Water to agencies reselling our water outside of San Francisco are being considered by all of those agencies. At the close of the year, agreements have been completed with many of such agencies in San Mateo County and numerous other agreements are now prepared and merely await the respective councils' action on the agreements before them.

The total cost of construction accomplished during the year was $1,735,000. This includes the finishing of the south basin of Sunset Reservoir and a part of the lining and roofing of College Hill Reservoir, which was 75% completed at the end of this year.

New Rate Schedules for Water Service were adopted on November 24, 1959, and revised Rules and Regulations governing water service to consumers were passed on December 15, 1959. Both became effective on January 1, 1960. The new rates and rules corrected inequities in and modernized the old structure, rather than making any material change in the rates being paid by the consumers.

The Department filed Application No. 18475 with the State Water Rights Board for a permit to appropriate unappropriated water from San Antonio Creek in Alameda County in connection with the construction of the San Antonio Dam. The hearing was held on April 5 and 6, before the State Water Rights Board which has taken the Application under advisement. San Francisco owns the basic water rights to most of the natural flow of this creek, but has now requested rights to storm water which now waste to the sea during times of excessive rain fall. This application is a preliminary step to the building of the San Antonio Dam, need for which is being increasingly felt in order to provide regulatory storage for the much increased diversions from the Tuolumne River through the Hetch Hetchy Aqueduct.

The program for the relocation of the Corporation Yard of the City Distribution Division was reactivated near the end of this year. A portion of the Marine Base in the Islais Creek area, which the Federal Government has declared surplus, was determined to be the most desirable of several locations studied. At the end of the year negotiations had been started to acquire this property.

A request for the appropriation of $1,965,000 for roofing and rehabilitation of the north basin of University Mound Reservoir was made near the close of the year. The approval of the appropriation is anticipated on receipt of funds from the sale of a portion of the Silva Tract in Millbrae. This should amount to about $1,800,000, the difference will come from revenue.

The tentative Disaster Manual for the Water Department was rewritten in conformity with present state requirements. The San Francisco District Council and Corps Coordinator, Region 2 of the California Disaster Office and the State Office at Sacramento approved the proposed Manual. The Sacramento State Office reported that they "found (the Manual) to be an outstanding example of detailed operational instructions."

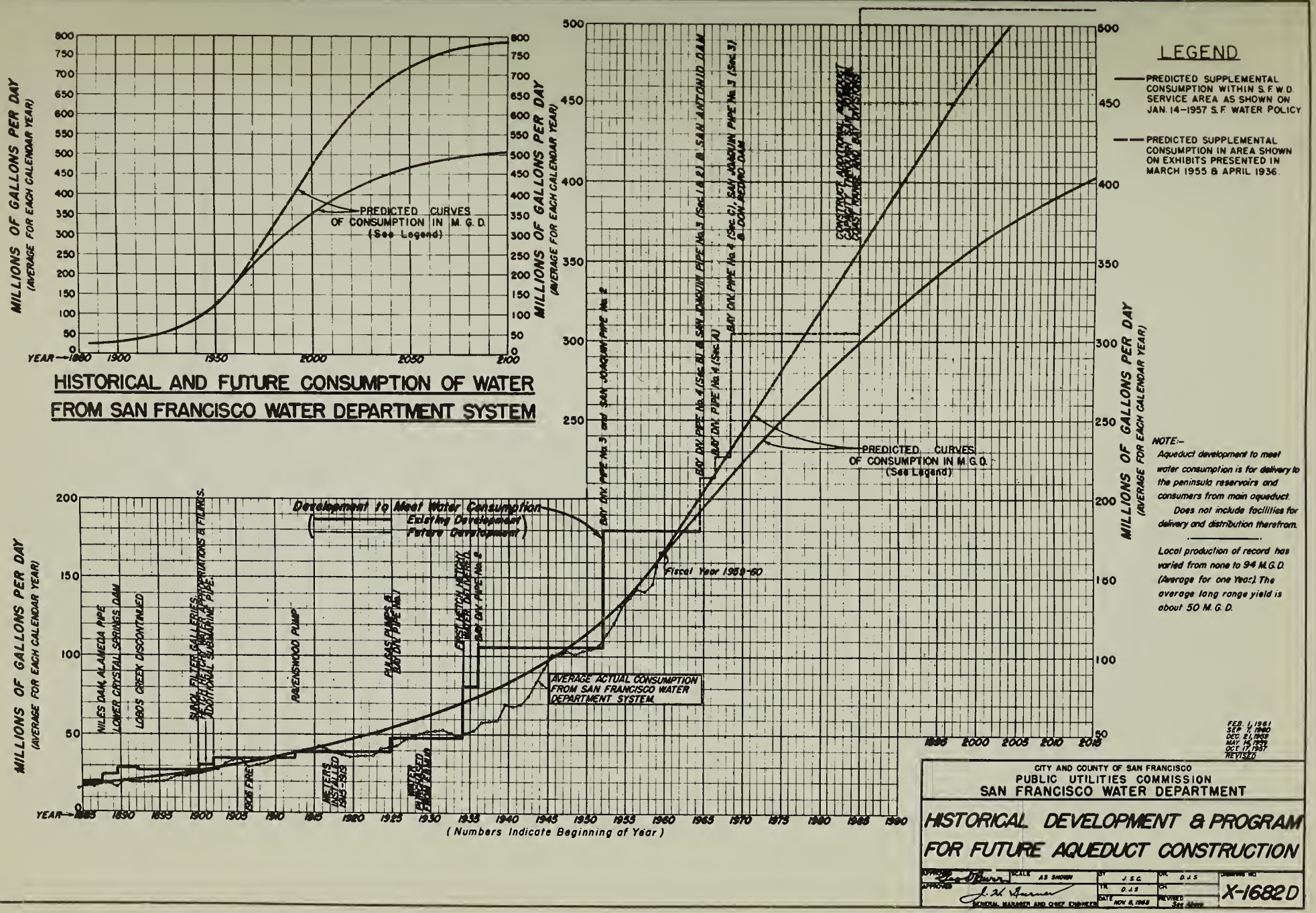
Additional mobile radio equipment was installed, and two fixed stations were constructed during this year. The system now consists of three base stations and 87 mobile units providing two-way radio communication throughout the Department for more efficient use of personnel and equipment, quicker response in times of emergency, as well as providing the only control communication system for the Water Department at times of disaster.

There have been continued efforts by private and public groups to place recreational and other activities on the watershed lands of reservoirs serving water directly to San Francisco and neighboring communities. Negotiations have been carried on with the sponsors of those proposals not incompatible with the necessary primary use of the land for water supply purposes.

The City and County of San Francisco through its Water Department carries a great responsibility to its inhabitants as well as to the people living in the suburban area who depend on us for an adequate supply of high quality and safe water. The fulfillment of this responsibility and obligation requires that the sources of supply be developed, the transmission and local storage capacities be increased, deferred maintenance be brought up-to-date, the worn out facilities be replaced, and an adequate program to insure that the quality of the water is satisfactory be maintained. As much as possible of this necessary program is intended to be financed from year to year directly from the Department's revenue. However, some of the work is so urgently needed and involves such a large capital cost that such work can be financed only through a bond issue to be submitted to the electorate in the Year 1961.

This foreward would not be complete without expressing a sincere appreciation to our personnel for their loyalty, devotion to duty, and cooperative efforts in maintaining and improving the efficienty of the Department.

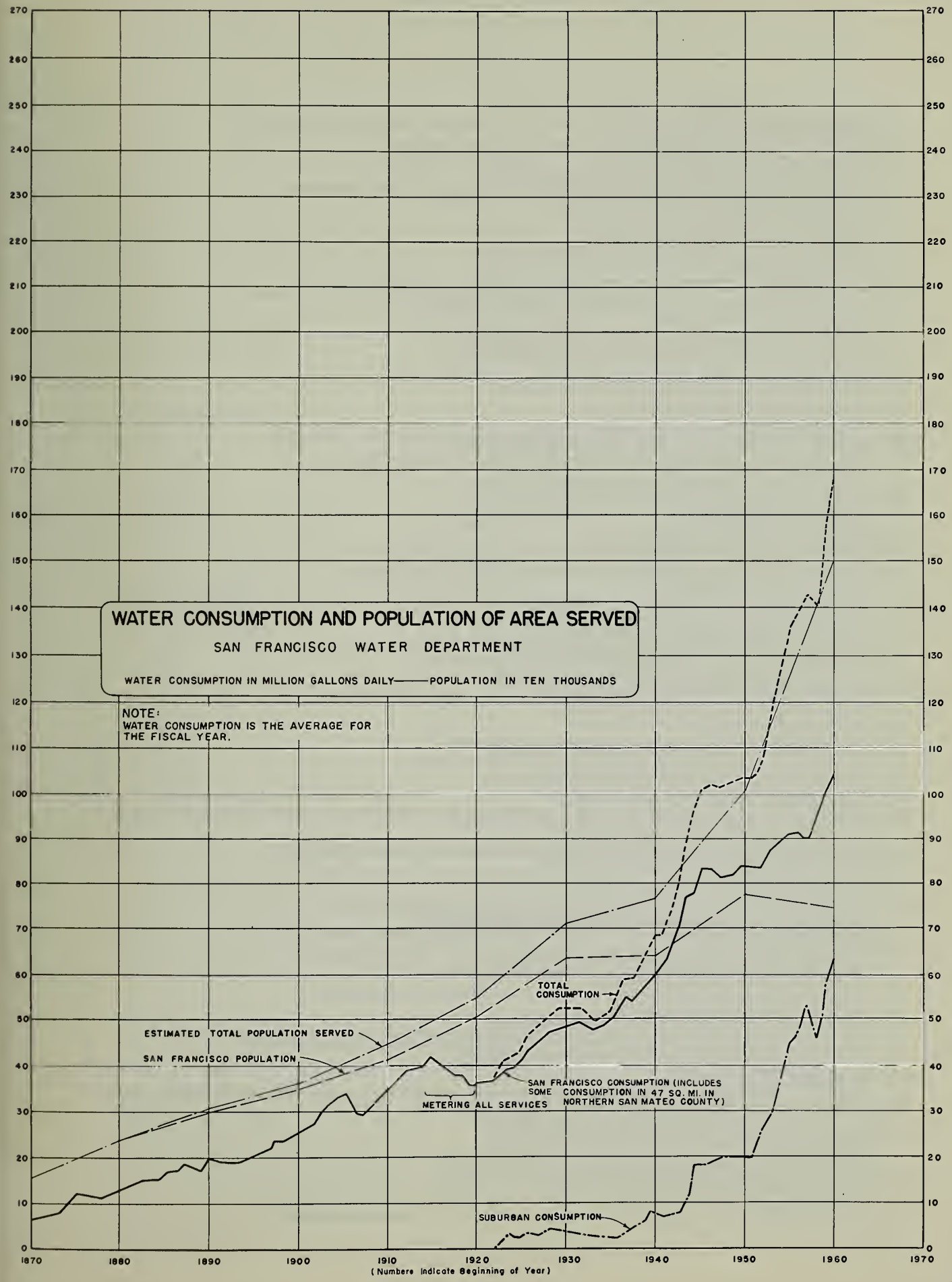
Following is a more detailed account of the Water Department operations with some figures subject to minor change as final accounting figures are not as yet completed.

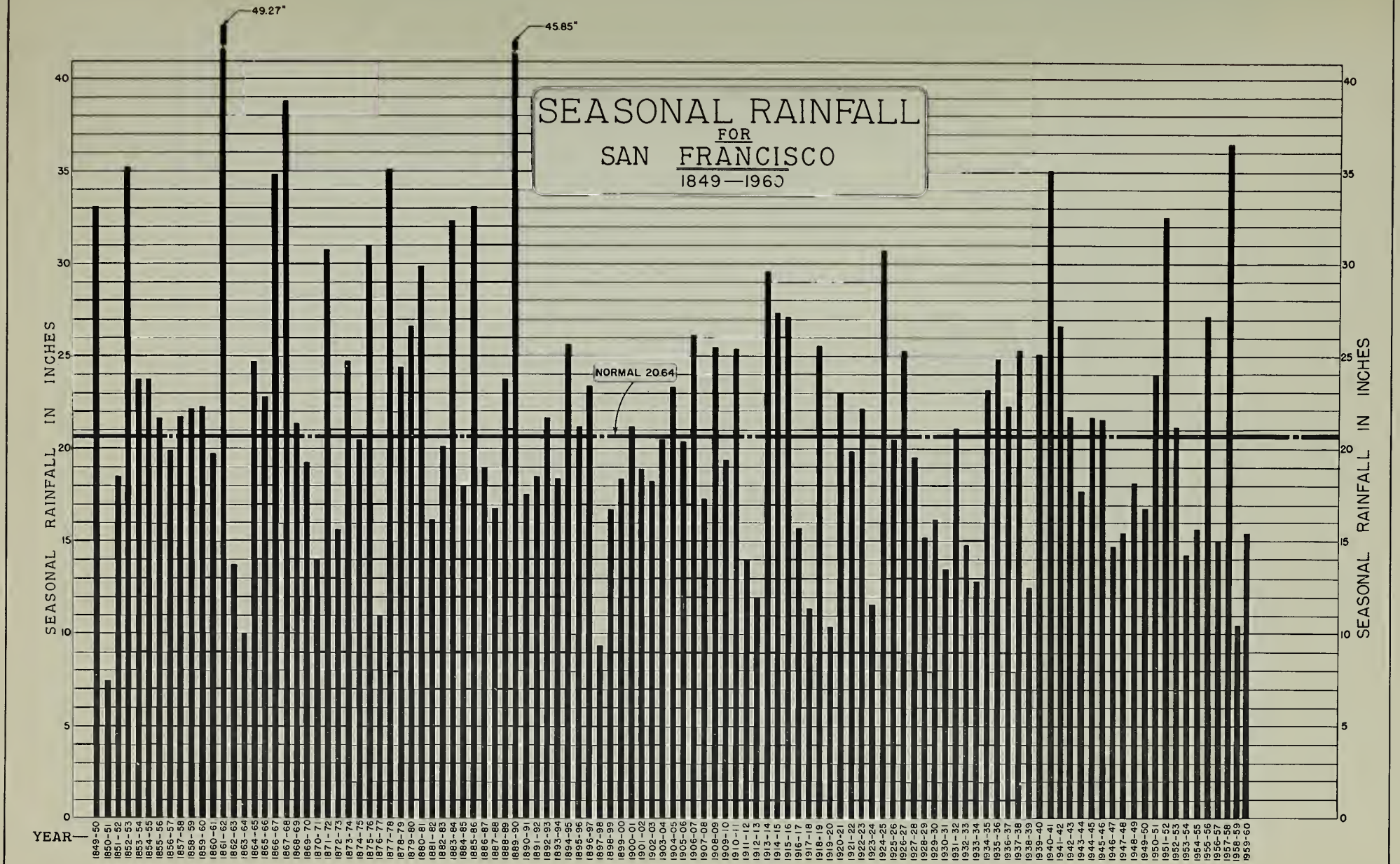

MILLIONS OF GALLONS PER DAY
(AVERAGE FOR EACH CALENDAR YEAR)
PREDICTED CURVES OF CONSUMPTION IN M. G. D. (See Legend)
YEAR
HISTORICAL AND FUTURE CONSUMPTION OF WATER FROM SAN FRANCISCO WATER DEPARTMENT SYSTEM
LEGEND
PREDICTED SUPPLEMENTAL CONSUMPTION WITHIN S.F.W.D. SERVICE AREA AS SHOWN ON JAN. 14-1957 S.F. WATER POLICY
PREDICTED SUPPLEMENTAL CONSUMPTION IN AREA SHOWN ON EXHIBITS PRESENTED IN MARCH 1955 & APRIL 1956.
NOTE:-
Aqueduct development to meet water consumption is for delivery to the peninsula reservoirs and consumers from main aqueduct.
Does not include facilities for delivery and distribution therefrom.
Local production of record has varied from none to 94 M.G.D. (Average for one Year.) The average long range yield is about 50 M.G.D.
Development to Meet Water Consumption
(Existing Development
Future Development)
Fiscal Year 1959-60
AVERAGE ACTUAL CONSUMPTION FROM SAN FRANCISCO WATER DEPARTMENT SYSTEM.
PREDICTED CURVES OF CONSUMPTION IN M.G.D. (See Legend)
BAY DIV. PIPE No. 3 and SAN JOAQUIN PIPE No. 2
BAY DIV. PIPE No. 4 (Sec. B) & SAN ANTONIO DAM
BAY DIV. PIPE No. 4 (Sec. A)
BAY DIV. PIPE No. 4 (Sec. C), SAN JOAQUIN PIPE No. 3 (Sec. 3) & CROW CREEK DAM
CONSTRUCT ADDITIONAL STORAGE AT CRYSTAL SPRINGS & PILARCITOS
WILES DAM, ALAMEDA PIPE
LOWER CRYSTAL SPRINGS DAM
LOBOS CREEK DISCONTINUED
SUNOL FILTER GALLERIES, SUNOL-NILES TUNNEL & APPURTENANCES & PILARCITOS-SUBMARINE PIPE.
RAVENSWOOD PUMP
PULGAS PIPES A & B
BAY DIV. PIPE No. 1
FIRST HETCH HETCHY AQUEDUCT
BAY DIV. PIPE No. 2
SCS FIRE
METERS INSTALLED 1925-1929
METERS INSTALLED 1930-1934
(Numbers Indicate Beginning of Year)
FEB. 1, 1961
SEP. 7, 1960
DEC. 21, 1959
MAY 14, 1959
OCT. 17, 1957
REVISED

CITY AND COUNTY OF SAN FRANCISCO
PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

HISTORICAL DEVELOPMENT & PROGRAM FOR FUTURE AQUEDUCT CONSTRUCTION

APPROVED: [signature] GENERAL MANAGER AND CHIEF ENGINEER
APPROVED: [signature]
SCALE: AS SHOWN
BY: J.S.C.
TR.: D.J.S.
DATE: NOV. 6, 1958
CK.: D.J.S.
CH.:
REVISED: See Above
DRAWING NO. X-1682D


WATER CONSUMPTION AND POPULATION OF AREA SERVED
SAN FRANCISCO WATER DEPARTMENT
WATER CONSUMPTION IN MILLION GALLONS DAILY——POPULATION IN TEN THOUSANDS
NOTE:
WATER CONSUMPTION IS THE AVERAGE FOR THE FISCAL YEAR.
TOTAL CONSUMPTION
ESTIMATED TOTAL POPULATION SERVED
SAN FRANCISCO POPULATION
SAN FRANCISCO CONSUMPTION (INCLUDES SOME CONSUMPTION IN 47 SQ. MI. IN NORTHERN SAN MATEO COUNTY)
METERING ALL SERVICES
SUBURBAN CONSUMPTION
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270
1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970
(Numbers Indicate Beginning of Year)


SEASONAL RAINFALL
FOR
SAN FRANCISCO
1849—1960
49.27"
45.85"
NORMAL 20.64
SEASONAL RAINFALL IN INCHES
SEASONAL RAINFALL IN INCHES
YEAR
0
5
10
15
20
25
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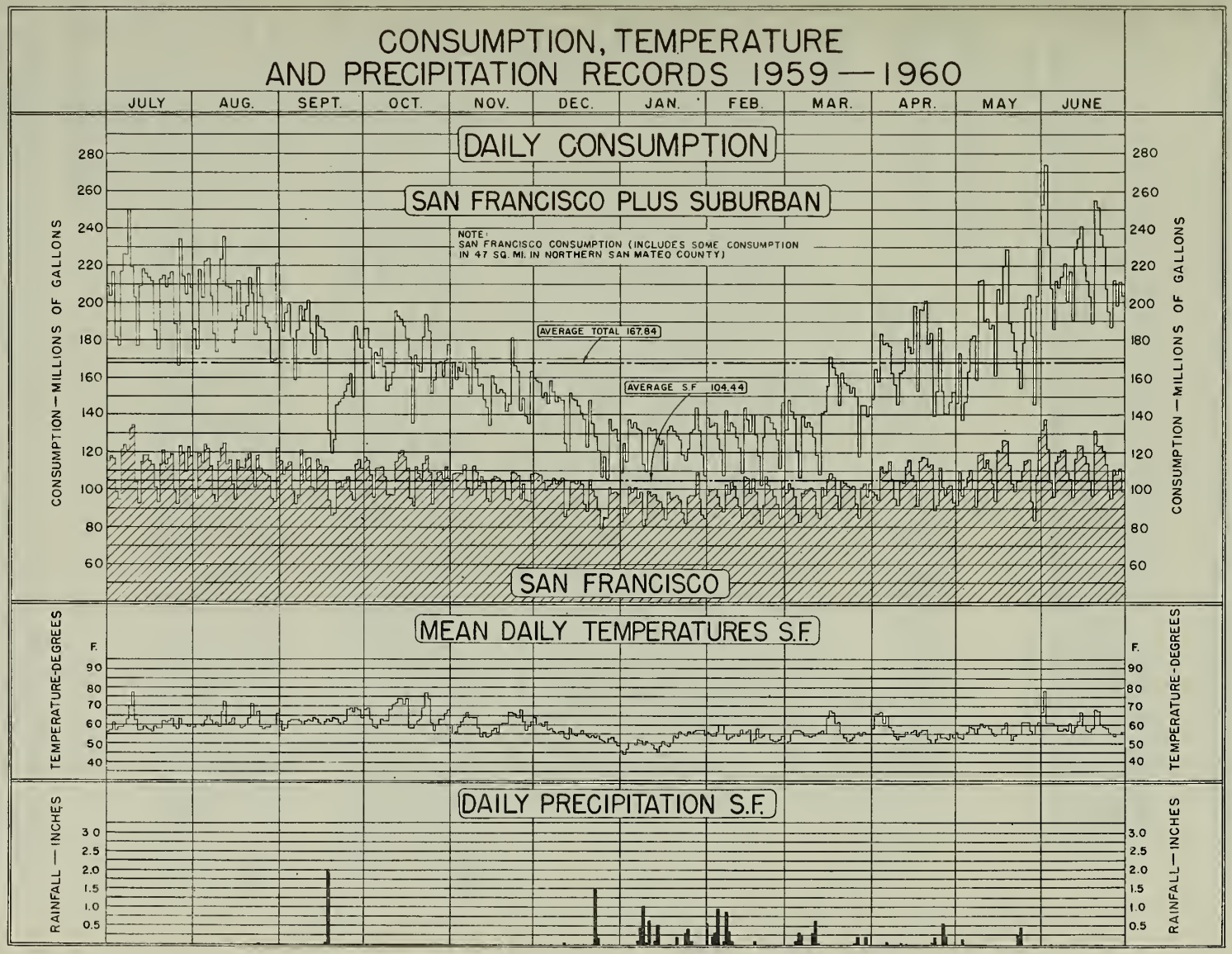
1957-58
1958-59
1959-60


CONSUMPTION, TEMPERATURE
AND PRECIPITATION RECORDS 1959 — 1960
JULY
AUG.
SEPT.
OCT.
NOV.
DEC.
JAN.
FEB.
MAR.
APR.
MAY
JUNE
DAILY CONSUMPTION
SAN FRANCISCO PLUS SUBURBAN
NOTE:
SAN FRANCISCO CONSUMPTION (INCLUDES SOME CONSUMPTION
IN 47 SQ. MI. IN NORTHERN SAN MATEO COUNTY)
AVERAGE TOTAL 167.84
AVERAGE S.F 104.44
SAN FRANCISCO
CONSUMPTION — MILLIONS OF GALLONS
280
260
240
220
200
180
160
140
120
100
80
60
MEAN DAILY TEMPERATURES S.F.
TEMPERATURE-DEGREES F.
90
80
70
60
50
40
DAILY PRECIPITATION S.F.
RAINFALL — INCHES
3.0
2.5
2.0
1.5
1.0
0.5

X-1124D

PRODUCTION AND TRANSMISSION

Total water provided for consumption during the year was 61,427.7 million gallons, averaging 167.8 million gallons per day, which is 10.2 million gallons per day more than during the preceding year.

Deliveries to the San Francisco consumption area averaged 104.4 million gallons daily, with deliveries to suburban areas averaging 63.4 million gallons daily. (Some suburban deliveries in northern San Mateo County are included in the San Francisco consumption area figures.)

Deliveries for consumption:

From Hetch Hetchy*	54,866.6	million gallons	(89.3%)
From local sources	6,561.1	" "	(10.7%)
Total Consumption	61,427.7	" "	(100.0%)

*Total delivery from Hetch Hetchy this fiscal year was 58,838.957 million gallons averaging 160.8 million gallons per day throughout the year. Out of this total 54,866.603 million gallons (147.9 mgd) were used for consumption and the balance of 3,972.354 million gallons (10.9 mgd)went into storage. The average daily deliveries of water from July 1,1934 to June 30, 1960 has been 100.3 million gallons out of which 58.0 million gallons have been received from Hetch Hetchy and 42.3 million gallons from local sources. The former is 57.8% of the total deliveries and the latter 42.2%.

All water delivered to San Francisco was, as heretofore, supplied entirely from San Andreas and Crystal Springs Reservoirs in San Mateo County. Those reservoirs were replenished from local run-off by water drawn from Calaveras Reservoir in Alameda and Santa Clara Counties and from the Hetch Hetchy system in the Sierra Nevada Mountains.

This Department delivers water directly from the several transmission and supply lines to practically all cities and towns in San Mateo County; to Palo Alto, Mountain View, Sunnyvale, Los Altos and Milpitas in Santa Clara County; to Hayward, Fremont and Newark in Alameda County and to some unincorporated areas in the three counties.

RAINFALL AND CATCHMENT:

The total amount of run-off from the local watersheds which was stored and/or diverted into the system for consumption was 17.0 million gallons per day average for the fiscal year. This is 0.8 mgd more than the average production in fiscal year 1958-59 and the fifth lowest year's production since 1930. The precipitation, output, input, storage changes and productions are given in detail for the local reservoirs.

At Calaveras there was 16.71 inches of rainfall for the season, which is 75.85 percent of normal and is 135.6 percent of that of last season. During the fiscal year 5,330.9 million gallons were withdrawn for consumption and the net decrease in storage was 345.7 million gallons, making a usable productivity of 4,985.2 million gallons, an average of 13.6 million gallons per day for the fiscal year. Total runoff into this reservoir, including 163.9 million gallons released to the creek, was 5,149.0 million gallons or 14.1 million gallons per day average for this year.

Peninsula watersheds averaged some 66.5 percent of normal rainfall as indicated by the readings at the five rain gaging stations on the water sheds.

The rainfall at the San Andreas station was 23.58 inches which was 64.0 percent of normal; at Pilarcitos 31.05 inches, 67.4 percent of normal; at Lower Crystal Springs station 20.15 inches or 79.1 percent of normal; Upper Crystal Springs station 19.52 inches which was 61.7 percent of normal and at the Crystal Springs Cottage station 16.30 inches, equal to 62.0 percent of normal.

Total storage in the four Peninsula reservoirs was increased 3,963.9 million gallons during the year. The Bay Division Pipelines delivered 49,876.0 million gallons to Crystal Springs Reservoir and there were 47,142.4 million gallons withdrawn from Crystal Springs and San Andreas for consumption. Usable production in the four reservoirs amounted to 1,230.3 million gallons or an average for the year of 3.4 million gallons per day.

The Sunol rainfall station recorded 14.82 inches for the year which was 73.1 percent of normal and 41.7 percent more than that of last season. During this fiscal year some 876.2 million gallons, an average of 2.4 million gallons per day, were collected in the Sunol Filter Galleries as measured at the Brightside Weir.

Rainfall at the City of Pleasanton gaging station was 14.63 inches for the year. This was 71.2 percent of normal and 74.2 percent more than the previous year.

STORAGE:

Calaveras storage on July 1, 1959 was 20,265 million gallons (gage 120'-5") or 64.2 percent of its capacity. Storage dropped to 16,390 million gallons (gage 109'-4 3/4") on January 8, 1960, the low storage for the fiscal year. Withdrawal for consumption was stopped on the 13 of January, 1960 and resumed on May 12, 1960, continuing then for the remainder of the fiscal year. The seasonal rains raised the reservoir water level to a gage height of 124'-4" on May 5, 1960, or 21,745 million gallons and remained there until May 14, 1960. By July 1, 1960, the reservoir water level was at gage height 119'-5 3/4" with 19,920 million gallons stored. This was 63.1 percent of its capacity and 345 million

gallons less than at the beginning of the fiscal year. There were 164 million gallons released to the creek averaging 0.4 million gallons per day.

Crystal Springs storage at the beginning of the year was 15,235 million gallons (gage 104'-9¼") which was drawn down to 12,783 million gallons (gage 97'-8") on September 18, 1959 the low storage of the year. It was filled to 18,647 million gallons (gage 113'-4½") on April 3, 1960. On July 1, 1960 there were 17,587 million gallons (gage 110'-10") of water in storage which was 92.5 percent of its capacity without flashboards and 2,352 million gallons more than at the beginning of the year.

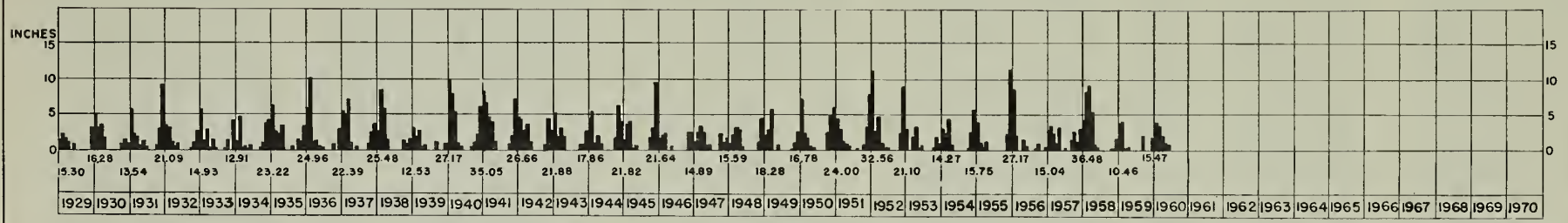
San Andreas storage on July 1, 1959 was 4,250 million gallons (gage 72'-11½") which was decreased to 3,864 million gallons (gage 70'-1¼") on December 18, 1959, the low storage for the year. This was increased to 5,814 million gallons (gage 83'-7¼") on May 25, 1960. At the end of the year the reservoir was 90.6 percent full, containing 5,609 million gallons, an increase of 1,359 million gallons during the year.

Pilarcitos contained 666 million gallons (gage 33'-4 3/4") of water at the beginning of the year. Withdrawals reduced the storage to the year's low of 647 million gallons (gage 32'-9") on November 29, 1959. On July 1, 1960 there were 919 million gallons (gage 41'-4½") in storage, which is 97.8 percent of capacity, without flashboards, and 253 million gallons more than at the beginning of the fiscal year.

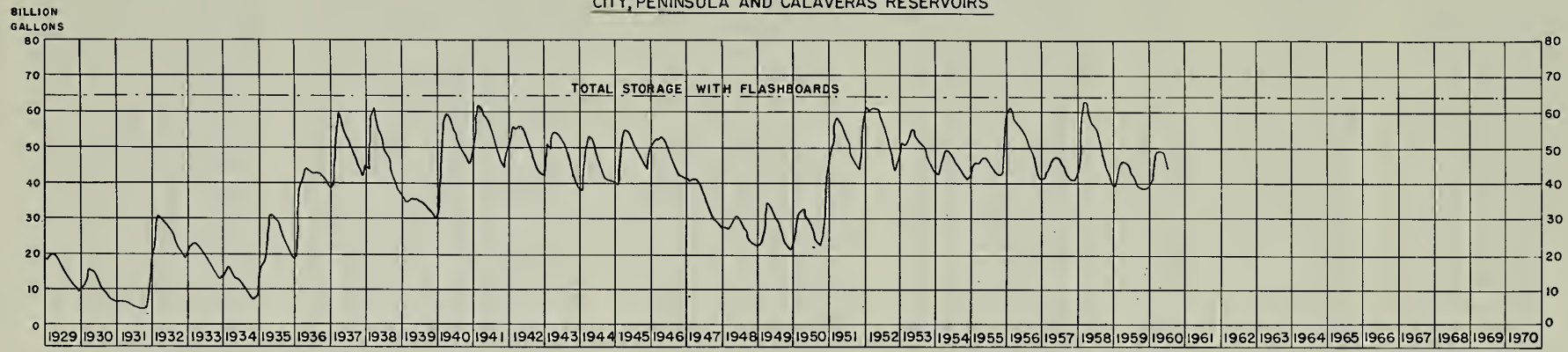
Lake Merced water has not been withdrawn for consumption since January 4, 1934 but it still remains an emergency source of water supply. On July 1, 1959 there were 2,284 million gallons of water in storage and on July 1, 1960 storage was decreased to 2,061 million gallons or 80 percent of capacity.

SAN FRANCISCO RAINFALL IN INCHES

U.S. WEATHER BUREAU
(NORMAL RAINFALL 20.51)



STORAGE IN BILLION GALLONS
SAN FRANCISCO WATER DEPARTMENT
CITY, PENINSULA AND CALAVERAS RESERVOIRS



X-1124E

TRANSMISSION LINES.

The Calaveras Pipeline carried a total of 5,330.9 million gallons, an average of 14.6 million gallons per day, from the reservoir to the Alameda Creek Siphon. This draft occurred from July 1, 1959 to January 13, 1960 and from May 13, 1960 to July 1, 1960.

The Sunol Pipeline delivered a total of 403.1 million gallons of water to the Sunol area from the Alameda Creek Siphon during the year. Of this total 381.0 million gallons were used for irrigation of the Water Department lands and 22.1 million gallons were used for the Sunol domestic supply.

No use was made of the Pleasanton Pipeline other than to provide minor quantities to local consumers throughout the year.

The Sunol Aqueduct transported 876.2 million gallons of Sunol Filter Gallery water to Niles Reservoir during the year. From Niles Reservoir 423.6 million gallons were transported through the old 36-inch Alameda pipeline to serve the Bunting Gravel Pit; 147.3 million gallons for serving consumers in the Niles area, including unaccounted for water and 305.3 million gallons were spilled into Clark Ditch. There was a loss in storage of 33,000 gallons in Niles Reservoir during the year.

The Coast Range Tunnel carried 58,838.9 million gallons of Hetch Hetchy water to the Alameda Creek Siphon (160.8 million gallons per day average). A total of 5,330.9 million gallons was released from Calaveras Reservoir all of which was delivered into the Alameda Siphon. Deliveries therefrom to the Sunol and Livermore areas total 583.0 million gallons and the remaining 63,586.8 million gallons (an average of 173.7 million gallons per day) was carried through the Irvington Tunnel.

Consumers withdrew 2,063.0 million gallons between Irvington Portal and the Irvington Meters, where there was registered a total flow in the three Bay Division pipelines of 61,523.8 million gallons. Withdrawals between the Irvington Meters and San Francisco Bay, and its continuation to Coyote River, amounted to 974.5 million gallons and the remaining 60,549.3 million gallons were transported to the Peninsula Division. Additional withdrawals of 10,673.3 million gallons on the west side of the bay and west of Coyote River left a total of 49,876.0 million gallons which were delivered through Pulgas Tunnel to Upper Crystal Springs Reservoir.

The two Crystal Springs pipelines carried an average of 98.2 million gallons per day from Lower Crystal Springs Reservoir. This was distributed as follows: to Sunset pipeline and thence to Lake Merced Pump Station, 44.4 million gallons per day; to University Mound Distribution System and to consumers between there and the Millbrae Headquarters, 30.5 million gallons per day and the remaining 23.3 million gallons daily to the distribution systems of the several Peninsula communities as far south as San Carlos.

San Andreas pipeline No. 2 carried an average of 23.3 million gallons daily from the reservoir to the Sunset and College Hill Distribution systems and to consumers along the pipeline.

The Baden-Merced pipeline carried an average of 6.2 million gallons per day, a total of 2,254.7 million gallons from the San Andreas 44-inch pipeline to the Merced-Manor district. The San Andreas 44-inch pipeline drew 2,677.0 million gallons from San Andreas Reservoir. The difference of 422.3 million gallons was used by consumers along the pipeline.

The Crystal Springs Aqueduct was in operation during the entire year, except from October 3 to December 1, 1959, carrying a total of 11,482.3 million gallons of water from the Crystal Springs Pumps to San Andreas Reservoir.

The Pilarcitos Aqueduct to San Andreas Reservoir was in service 9 weeks during the year and carried an average of 0.8 million gallons per day to San Andreas Reservoir.

PUMP STATIONS:

The Irvington Pumps were not operated during the fiscal year 1959-60.

One or more of the Crystal Springs-San Andreas pumps operated the entire year, except from October 3 to December 1, 1959. A total of 11,482.3 million gallons was pumped to San Andreas Reservoir, making a daily average of 31.4 million gallons. Crystal Springs booster pumps were not operated during the year.

Baden and Alemany pumps were not operated during the 1959-60 fiscal year. The motors were kept dry and turned over every month and the stations were maintained in a condition of readiness.

Pleasanton Pumps have not been operated for export of water since April 30, 1949. Wells 01, 06, 09 and 012 were operated intermittently throughout the year to supply domestic needs of local consumers and six other wells were operated by agricultural lessees for irrigation on land leased from the City.

There was an estimated 20.0 million gallons of water pumped from Alameda Creek at the Sunol Headquarters and 209.2 million gallons drawn from the Pleasanton Well Field for Irrigation use by Lessees on Water Department lands at those locations in 1959-60.

San Francisco wells at Black Avenue and Santa Rita Road, north of Pleasanton, Alameda County, pumped 208.4 million gallons of water for the City of Pleasanton during this fiscal year.

Lake Merced Pumps boosted an average of 44.4 million gallons per day from the Sunset Pipeline pumping 33.5 million gallons average daily to Sunset Reservoir and 10.9 million gallons average per day to Sutro Reservoir.

MAINTENANCE AND OPERATION:

There were twenty one leaks developed in the Department's pipelines in the Alameda Division during this fiscal year. Nine of them were in the Bay Division 60-inch Pipeline No. 1; one leak in each of three transmission lines: Bay Division 66-inch (No. 2), Sunol Aqueduct and the Pleasanton 30-inch pipeline. There were three leaks in each of the following pipelines: the Sunol Chlorine supply line; Sunol 12-inch supply line and the Niles-Irvington 44-inch pipeline.

For the fourth consecutive year no leaks have occurred in the Bay Division Pipelines No.1, 2, and 3 in the Peninsula Division. This demonstrates the value of the programs of lining the older pipes with cement mortar and providing cathodic protection against electrolytic action.

There were twelve leaks repaired in the Peninsula Division as follows:

The section of the 83-year old Alameda 36-inch pipeline between the Burlingame Valve Lot and Belmont developed three leaks in Pacific Boulevard, San Mateo. It was necessary to shut the pipeline down to repair one of the leaks. The southern end of the pipeline was provided with water by feeding back from San Carlos during the time of the shutdown.

It was necessary to shut down Crystal Spring Pipeline No. 1 to repair two of the three leaks occurring in this line during the year. One of these was caused by construction work in the Crocker Industrial Park, where a bulldozer ruptured the pipe in two places.

No leaks developed in Crystal Springs No. 2; San Andreas' No. 1, Sunset, San Andreas 30" and 60" cross-connection, Pilarcitos nor Baden-Merced pipelines.

The four leaks in San Andreas Pipeline No. 2 were caused by electrolysis action.

There was one leak in the Stone Dam Aqueduct at Tunnel No. 1 and one in the Crystal Springs 54-inch pump discharge line.

Flow recorders were installed at Brightside Weir and Niles Reservoir spillway. A valve bypass with meter was constructed on the Alameda 36" pipeline and valves in the pipes at the Irvington Pump Station were overhauled. These improvements should provide more accurate records of the quantities of water released to the Alameda County Water District for replenishing the Niles Cone and of the water collected in the Sunol Filter Galleries. The Galleries were repaired and quantities of gravel removed from them.

Cross connections were installed on all services along Bay Division Pipelines Nos. 1 and 2 in Alameda County. Other maintenance jobs done include sluicing the gravel from the Upper Alameda Diversion Dam, repairing and remodeling the Pleasanton Well Field pumps, construction shelters over motorized valves, and a new boat shelter constructed at Newark Slough.

During the shutdown of Bay Division Pipeline No. 1 for cement mortar lining, the adjoining sections of the pipe and their appurtenances were inspected and repaired insofar as possible and new blowoffs were installed at various locations to facilitate draining the pipeline in the future.

Concrete boxes were constructed around manholes, air valves and blowoffs on the Sunol 36-inch pipeline and were lowered and cast iron frames installed where needed on the Bay Division Pipeline No. 1 in the Peninsula Division.

An inspection was made of the Crystal Springs 44-inch pipe from the forebay to the pump house. It was found to be in very good condition for its age, however there were a great many tubercles on the walls of the pipe. The No. 1 valve is quite badly worn and should be repaired when this section is again shut down. An 18-inch manhole was installed to provide access to this section of the pipeline.

The last Belmont County Water District service on the old Alameda 36-inch pipeline was removed. They now take all of their water from the Bay Division Pipelines Nos. 1 and 2.

San Andreas Pipeline No. 1 and the Millbrae Taylor Field service are supplied water through San Andreas outlet No. 3. The No. 1 forebay at the reservoir has been shut off and leakage into the tunnel reduced to about one half million gallons per day.

A check dam was built across the creek entering Upper Crystal Springs Reservoir near the Pulgas Outfall Canal. Considerable silt is carried by this creek and the check dam creates a settling pond for its removal.

Davis Tunnel was inspected during the year and it was found to be in very good condition.

All Venturi meters were cleaned and checked, the clocks were removed, cleaned and oiled. This is a maintenance program instituted this year.

A count was made for the first time, of all valves in the Suburban Divisions. There were found to be 5,369 valves in service in that area and are tabulated in the Appendix.

The road to Pilarcitos was somewhat improved by widening and eliminating some of the sharp turns.

Various buildings in the Peninsula Division were painted.

The normal maintenance work of grading roads, weed eradication, trimming of trees, fire guarding and minor repairs was carried out during the year.

During the shutdown of Crystal Springs to San Andreas Pumps, due to repair and rebuilding of the canal, the badly worn impeller in the #3 pump was replaced increasing the discharge from 13 to 21 million gallons per day with a noticeable saving in power. The number 4 pump was in good condition.

San Andreas Reservoir No. 3 outlet pipe was drained from the forebay through the tunnel. On inspection a considerable amount of growth was noted. The pipe was cleaned by hand and flushed out.

W A T E R R I G H T S

In accordance with the 1916 and subsequent Alameda County Water District agreements, the Department released water for replenishment of the underground supply of the Niles Cone and the total release during the year was 694.7 million gallons.

The quantities of water due the District and the quantities released by the Water Department to the District for replenishing the underground waters for each of the past five years are as follows:

Year	Due the District	Released to District
1955-56	222,850,000 Gallons	989,290,000 Gallons
1956-57	403,850,000 "	1,538,450,000 "
1957-58	---	410,150,000 "
1958-59	284,585,000 "	1,069,080,000 "
1959-60	239,766,000 "	694,682,000 "
	1,151,051,000 Gallons	4,701,652,000 Gallons

On April 5 and 6, 1960, The State Water Rights Board, State of California, held a hearing on San Francisco's application (No. 18,475) for a permit to appropriate the unappropriated water from San Antonio Creek, a tributary of Alameda Creek, in Alameda County. Most normal flows have been appropriated by San Francisco and this permit would give San Francisco the right to the flood waters. No decision had been reached on this application by the Board at the end of this fiscal year.

The Department continues to bill at regular rates the customers who previously were supplied water under the old reduced rate and free water contracts. This billing is in accordance with the City Attorney's opinion of July 1, 1952. Out of the fourteen accounts, to which this ruling applied, five have been adjudicated and they are paying regular rates for the water used. The remaining nine are not settled. In dispute are the following amounts: the customers have filed for refunds of $336,509.39 which they have paid but claim is in excess of the amount due us; $78,829.41 which has been billed, but not paid, for the period since July 1, 1952 and $92,909.38 which has been billed, but not paid, for the two-year period prior to July 1, 1952.

The Sheriff of Alameda County continued to use the U. S. Navy's Camp Shoemaker as Santa Rita Rehabilitation Center during the fiscal year. Water supplied to this institution, as well as to the former Naval Housing Project, Komandorski Village and the Parks Air Force Base, was taken from the 4.105 acre tract within the Pleasanton Water District. Camp Parks daily withdrawal of ground waters varied from a high of 2.5 million gallons to a low of 1.0 million gallons on days when they pumped. The pumps operated for the first ten days of July 1959; during the balance of the year pumping was on a five day per week basis.

The high water table for this year in the Pleasanton Well Field, as measured in Well No. W103X, was 86.2 occurring in March, 1960. Due to the low rainfall, this water level is 11.2 feet lower than the high water level of last year as measured by this well.

The Water Department again reimbursed the Pleasanton Township County Water District for electric power charges for pumping "Community Wells" and paid power bills rendered to land owners, except as otherwise provided in the agreement.

The City of Pleasanton continued, throughout the year, to obtain water from the two Department wells, located at Black Avenue and Santa Rita Road and San Francisco paid all resulting electric power bills. When the water table was above elevation 328, which was from February 10, 1960 to February 26, 1960, the Department billed Pleasanton for water delivered. Pleasanton was also billed for all water used in excess of 600,000 gallons per day when the water table was below elevation 328.

During this fiscal year the lessees on Department lands bordering Laguna and Alameda Creeks used, for irrigation, about 20 million gallons of water from these creeks.

The tenants on the City's Well Field property near Pleasanton pumped about 209 million gallons of water from City owned wells, for irrigation of this leased property, during the fiscal year.

In the City of San Francisco the City Recreation and Park Department pumped 166.2 million gallons of water from Lake Merced and from its underground source for their own use. At Golden Gate Park this same Department withdrew from ground sources about 302.7 million gallons of water.

CHLORINATION BUILDING, LOMBARD RESERVOIR COPY NEG. X-6271
FRONT X-4807
6-22-59

WATER QUALITY AND TREATMENT

GENERAL:

Normal water treatment practices and proper precautions for safeguarding the San Francisco water supply were in force throughout the year. Disinfection of all supplies was continuous and water served to customers complied with the bacteriological standards established by the U. S. Public Health Service for drinking water purity.

In general, the water is free of tastes and odors other than that due to the chlorine residual maintained throughout the system and the quality is good for an unfiltered supply derived primarily from surface sources.

LABORATORY:

All analytical work in the fields of biology, bacteriology and chemistry, except the necessary field tests, was performed in our laboratory, located at Millbrae, which has been certified by the State Department of Public Health as an "Approved Water Laboratory for Complete Chemical and Complete Bacteriological Analyses."

Following is a tabulation which summarizes the field and laboratory tests made during the year in connection with water treatment, sanitary control, and special investigations:

Bacteriological Examinations	9,168
Microscopical Examinations of Algae	204
Electrical Conductivity Measurements	3,961
Turbidity Measurements	3,484
Partial Chemical Analyses	1,834
Routine Fluoride Tests	3,390
Color Measurements	804
Dissolved Oxygen Tests	573
Analyses to Determine Origin of Leaks	477
Complaint Investigations	96
Chlorine Residual Tests	3,000
Miscellaneous Field Tests	2,300
Miscellaneous Laboratory Tests not otherwise included	740
Complete Mineral Analyses	12
Irrigation Water Analyses	4

Due to the number of tests required in making an analysis the execution of the above examinations actually required the performance of 19,167 chemical, 14,402 bacteriological, 204 biological and 9,745 physical tests, totaling 43,518 individual tests.

CHLORINATION:

Disinfection of all supplies was continuous throughout the year, with no water being exposed to contamination between the time of last chlorination and the consumer's service. Seven of the thirteen chlorination stations operated continuously. The Calaveras, San Andreas No. 1; San Andreas No. 2; San Andreas No.3; College Hill and Merced Manor stations operated for 8.0; 0.7; 0.9; 11.1; 10.2 and 1.8 months respectively. Four hypochlorination units of low capacity were also in service at least a part of the year. The unit at Potrero Heights was in continuous service and that at the Pleasanton Well field ran continuously for 2.5 months and intermittently the rest of the year.

A total of 1,436,131 pounds of chlorine was used during the year, an 8.2% decrease as compared with last year's usage. Fifty-two and four tenths percent of the total was used at the Tesla Station, 6.2% in the Alameda Division, 38.0% in the Peninsula Division and 3.4% in the City Distribution Division. Chlorine dosages averaged 13.0 pounds per million gallons at the Tesla Station, 15.4 pounds per million gallons at the Calaveras Station, 8.54 pounds per million gallons at the Sunol Station, 11.7 pounds per million gallons at the Crystal Springs Station and 11.4 pounds per million gallons at the San Andreas Stations.

FLUORIDATION:

Fluoridation of practically all water supplied from the Peninsula reservoirs was continuous throughout the year except for minor shutdowns for maintenance, repair and adjustment.

Adequate safety features are provided and there was no overdosage of fluoride in any of the water served to consumers during the year.

During the past fiscal year, a total of 533,952 pounds of sodium silicofluoride was used to treat 47,224 million gallons of water. The average dosage of 11.3 pounds per million gallons is equal to 0.82 parts per million of available fluoride. This amount, added to the 0.05 ppm of the natural fluoride content of the water gave an average total fluoride concentration in the water served to consumers of 0.87 parts per million.

CORROSION CONTROL:

A total of 2,381,289 pounds of lime was used at the Rock River plant in treating 58,197.7 million gallons of water, giving a dosage of 40.9 pounds per million gallons. The total lime used is an increase of 57.9% over the previous year's use.

ALGAE CONTROL:

A total of 52,950 pounds of copper sulfate was required during the year for the control of algae in our local storage and impounding reservoirs. This is 2.42 times the quantity used last year and 71.7% of the past ten years' average. It was necessary to treat both Calaveras and Stone Dam Reservoirs twice and Pilarcitos and San Andreas once during the year. Crystal Springs Reservoirs required no treatment.

COAGULATION:

A total of 385,520 pounds (35,047 gallons) of liquid alum was used as needed during the rainy season to reduce the turbidity of the water entering Lower Crystal Springs lake from San Andreas Creek. This is 67% more than used last year.

WATER QUALITY:

The dissolved chemical content of the water served to consumers from the various sources of supply showed a marked decrease when compared with the water served last year. This change in hardness of the water served is due primarily to differences in proportion of water entering from Calaveras and Hetch Hetchy and not from any changes in the chemical content of these sources.

From January 13 to May 11 the Bay Division Pipelines carried Hetch Hetchy water only, the balance of the year they carried a mixture of Hetch Hetchy and Calaveras water.

Automatic chlorination equipment was installed at Sunset-South Basin and University Mound-South Basin. These units operate on electrical impulses transmitted from Sparling flow meters in the reservoir outlet mains and maintain a constant chlorine dosage regardless of rate of flow.

CROSS-CONNECTIONS:

There are some 175 services to consumers who have cross-connections with other sources of supply on their premises and 279 services to fire and water service hydrants on the waterfront. To prevent backflow, which could contaminate the City's water supply, each of these 454 services has double check valve assemblies installed in them. The 558 waterfront check valves were inspected during the year and there were 41 found to be defective which were replaced or repaired.

TABLES AND CHARTS:

The following tables and charts are self-explanatory.

OPERATION OF CHLORINATION STATIONS

1959-1960

Location		Total Operating Time (months)	Chlorine Used (lbs.)	
Division	Station		Station Total	Division Total
Coast Range H.H.W.S.	Tesla	12.0	752,456	752,456
Alameda	Calaveras	8.0	82,081	
	Pleasanton Well Field	12.0	66	
	Sunol Aqueduct	12.0	7,246	89,393
Peninsula	Crystal Springs #1		214,778	
	Crystal Springs #2		203,980	
	San Andreas #1		765	
	San Andreas #2		18,806	
	San Andreas #3		107,160	545,489
City Distribution	University Mound			
	Line #1		3,686	
	Line #2		33,512	
	College Hill		9,474	
	Lombard		1,584	
	Potrero Heights		154	
	Merced Manor		383	48,793
			Total	1,436,131

1959-1960

OPERATION OF FLUORIDATION STATIONS

STATION	Days off *	Months Operated	Fluoride Used (lbs.)	Flow (m.g.)	Fluoride Added		Total Fluoride
					Na_2Si_6 Lbs./m.g.	F ppm	F ppm
.S. #1	34	12.0	199,771	18,377.6	10.9	0.80	0.85
.S. #2	17	12.0	208,069	17,647.2	11.8	0.87	0.92
.A. #1	12	12.0	30,758	2,667.2	11.5	0.84	0.89
.A. #2	20	12.0	95,354	8,532.3	11.2	0.82	0.87
		Total	533,952	47,224.3	11.3	0.82	0.87

*Number of days machine shut down for mechanical and electrical repairs and adjustments, power interruptions, etc.

OPERATION OF LIME TREATMENT STATION

STATION	Months Operated	Lime Used (lbs.)	Flow (m.g.)	Lime Added	
				Lbs.,/m.g.	ppm
ock River (H.H.W.S.)	12.0	2,381,289	58,197.7	40.9	4.91

OPERATION OF ALUM TREATMENT STATION

STATION	Alum Used		Remarks
	Gallons	Lbs. (Dry)	
an Andreas Creek	35,047	188,210	Operated intermittently as needed during the months of September, January, February and March

1959-1960

COPPER SULFATE

"$CuSO_4$"

RESERVOIR	DATE	AMOUNT $CuSO_4$ (lbs.)	STORAGE *(m.g.)	REASON FOR TREATMENT
Calaveras	7/21/59	21,950	19,531	Mougeotia
" " "	10/6/59	21,800	17,610	Dynobryon
Pilarcitos	12/1/59	1,200	647	Staurastrum
San Andreas	3/16/60	7,900	5,743	Aphanizomenon and Synedra
Stone Dam	10/30/59	50	8	Mallomonas
" " "	6/27/60	50	8	Asterionella
	Total	52,950	43.55 Billion Gallons	

52,950
-21,900
32,050

$\frac{32,050 \times 100}{21,900}$ = 146% increase from previous year.

73,895
-52,950
20,945

$\frac{20,945 \times 100}{73,895}$ = 28.3% below previous 10 year average.

* Storage at time of treatment.

WATER QUALITY

1959-1960

CRYSTAL SPRINGS LINES

Hardness	Max. 37	Min. 24	Av. 30 (1.75 grains per gal.)
Chloride	9	4	5 ppm
Alkalinity	31	19	26 ppm
pH	7.7	6.8	7.1
Conductivity	114	73	86 Micromhos
Turbidity	2	0.5	1 ppm
Temperature	70°	49°	60°F.
Dissolved Oxygen	12.3	7.9	9.4 ppm (94% Saturation)

SAN ANDREAS LINES

Hardness	Max. 50	Min. 26	Av. 43 (2.51 grains per gal.)
Chloride	10	5	8 ppm
Alkalinity	45	20	35 ppm
pH	7.7	6.9	7.1
Conductivity	140	86	118 Micromhos
Turbidity	8	0.5	1 ppm
Temperature	72°	48°	59°F.
Dissolved Oxygen	11.7	7.9	9.7 ppm (96% Saturation)

BAY CROSSING LINES

Hardness	Max. 34	Min. 12	Av. 22 (1.29 grains per gal.)
Chloride	5	1	3 ppm
Alkalinity	30	10	17 ppm
pH	9.3	6.7	8.5
Conductivity	86	42	65 Micromhos
Turbidity	6	0.5	1 ppm
Temperature	60°	45°	56°F.
Dissolved Oxygen	12.9	8.3	10.2 ppm (97% Saturation)

MONTHLY SUMMARIES OF BACTERIOLOGICAL ANALYSES
SAMPLES COLLECTED FROM THE SAN FRANCISCO DISTRIBUTION SYSTEM
IN ACCORDANCE WITH CERTIFICATION REQUIREMENTS

1959-1960

Month	Coliform Tests					
	Samples Positive (3 or more tubes)			Tubes Positive (10 ml. portions)		
	No. of Samples	Number Positive	Per cent Positive	Number of Tubes	Tubes Positive	Per cent Positive
1959						
ly	441	9	2.0	2205	57	2.6
gust	435	3	0.7	2175	24	1.1
ptember	400	5	1.2	2000	40	2.0
tober	432	4	0.9	2160	28	1.3
vember	421	11	2.6	2105	68	3.2
cember	432	2	0.5	2160	14	0.6
1960						
nuary	394	1	0.2	1970	7	0.4
bruary	420	6	1.4	2100	32	1.5
rch	428	3	0.7	2140	19	0.9
ril	372	1	0.3	1860	17	0.9
y	404	7	1.7	2020	48	2.4
ne	409	10	2.5	2045	66	3.2

BACTERIOLOGICAL ANALYSES

ANNUAL SUMMARY OF RESULTS

RAW WATERS - SOURCES AND RESERVOIRS*

1959-1960

rigin of Sample	Agar Count No. per ml.			Coliform Group 10 ml Portions			Samples		
	Min.	Max.	Median	No. Exam.	No. Pos.	% Pos. Yr.	No. Exam.	No. Pos.	% Pos. Yr.
ocasin Reservoir	1	>300	> 300	260	208	80.0	52	44	84.6
ela Portals	1	5	1	245	10	4.1	49	1	2.0
averas Reservoir	1	>300	16	345	149	43.2	69	30	43.5
ol Filters	1	>300	10	255	212	83.1	51	44	86.3
asanton Well Field	1	>300	2	260	64	24.6	52	11	21.2
asanton Town Well	1	>300	1	255	35	13.7	51	5	9.8
er C.S. Reservoir	1	>300	50	260	195	75.0	52	41	78.8
er C.S. Reservoir	1	>300	15	520	305	58.6	104	62	59.6
Andreas Reservoir	1	>300	10	520	299	57.5	104	84	80.8
arcitos Reservoir	1	191	3	260	123	47.3	52	24	46.2
he Dam Reservoir	1	>300	70	260	240	92.3	52	49	94.2
oard Reservoir	1	150	1	525	178	33.9	105	35	33.3
v. Md. Res. #1	1	>300	1	525	303	57.7	105	62	59.0
v. Md. Res. #2	1	50	1	525	16	3.0	105	3	2.8
lege Hill Res.	1	>300	3	405	48	11.8	81	10	12.3
set Reservoir	1	>300	1	525	0	0	105	0	0
ncisco Reservoir	1	10	1	525	22	4.2	105	3	2.8
				M.P.N.					
				Min.	Max.	Med.			
Honda Res.**	1	>300	7	4.5	920	110	26	16	61.5
Merced N.	1	>300	200	33	>700	130	27	27	100
Merced S.***	12	>300	>300	11	>700	49	35	35	100
una Creek	250	>300	>300	130	>2400	350	15	15	100
eda Creek	1	>300	>300	49	>2400	920	33	33	100
Antonio Creek	200	>300	>300	130	>2400	240	6	6	100

* Includes all distribution reservoirs with chlorination facilities operating at the outlet.

** Standby purpose only.

*** Emergency standby source.

M.P.N. Most probable number per 100 milliliter.

BACTERIOLOGICAL ANALYSES
ANNUAL SUMMARY OF RESULTS
Treated Waters
1959-1960

Origin of Sample	Agar Count No. per ml.			Coliform Group 10 ml. Portions			Samples		
	Min.	Max.	Median	No. Exam.	No. Pos. Yr.	% Pos. Yr.	No. Exam.	No. Pos. *	% Pos. Yr.
Alameda East	1	200	1	260	1	0.4	52	0	0
Alvarado Pipeline	1	>300	1	180	1	0.6	36	0	0
Arnol Aqueduct	1	175	1	260	0	0	52	0	0
Irvington Pump Station	(No samples this year)								
Arnol Town Supply	1	>300	1	515	2	0.4	103	0	0
Bay Crossing Line #1	1	100	1	445	1	0.2	89	0	0
Bay Crossing Line #2	1	250	1	520	3	0.6	104	0	0
Bay Crossing Line #3	1	100	1	260	0	0	52	0	0
Bayward	1	>300	1	245	1	0.4	49	0	0
Irvington Venturi Meter	1	100	1	260	0	0	52	0	0
Palo Alto Pipe Line	1	50	1	615	3	0.5	123	0	0
Alameda Line, Belmont	1	>300	1	520	26	5.0	104	4	3.8
San Francisco Airport	1	8	1	525	12	2.3	105	1	0.9
Crystal Springs Line #1	1	2	1	1570	26	1.7	314	4	1.3
Crystal Springs Line #2	1	180	1	1570	15	1.0	314	2	0.6
San Andreas Line #1	1	100	1	1565	33	2.1	313	5	1.6
San Andreas Line #2	1	>300	1	1565	26	1.7	313	3	0.9
San Andreas Line #3	1	15	1	445	13	2.9	89	2	2.2
University Mound Inlet #1	1	128	1	525	11	2.1	105	1	0.9
University Mound Inlet #2	1	200	1	525	18	3.4	105	4	3.8
University Mound Outlet #1	1	1	1	525	1	0.2	105	0	0
University Mound Outlet #2	1	200	1	525	5	0.9	105	1	0.9
University Mound System #1	1	2	1	525	0	0	105	0	0
University Mound System #2	1	200	1	525	6	1.1	105	1	0.9
University Mound System #3	1	5	1	525	56	10.7	105	9	8.6
University Mound System #4	1	4	1	525	0	0	105	0	0
University Mound System #5	1	2	1	525	1	0.2	105	0	0
University Mound System #6	1	>300	1	525	18	3.4	105	3	2.9
College Hill Trans. System	1	2	1	395	0	0	79	0	0
College Hill Outlet	1	5	1	390	4	1.0	78	1	1.3
College Hill System #1	1	4	1	525	5	0.9	105	1	0.9
College Hill System #2	1	6	1	525	0	0	105	0	0
Inset Supply Line	1	>300	1	1570	22	1.4	314	3	0.9
Inset Trans. System	1	2	1	525	11	2.1	105	2	1.9
Inset Inlet	1	16	1	525	3	0.6	105	1	0.9
Inset Outlet	1	2	1	525	0	0	105	0	0
Inset System #1	1	20	1	525	0	0	105	0	0
Inset System #2	1	1	1	525	1	0.2	105	0	0
Forest Hill System	1	>300	1	125	0	0	25	0	0
Cabrero Heights System	1	10	1	525	7	1.3	105	1	0.9
Hubbard System	1	2	1	525	0	0	105	0	0
Forest Manor Reservoir	1	11	1	525	3	0.6	105	1	0.9
Forest Manor System	1	50	1	525	5	0.9	105	0	0
Stanford Heights Reservoir	1	>300	1	525	25	48	105	3	2.9
Stanford Heights System #1	1	40	1	525	11	2.1	105	0	0
Stanford Heights System #2	1	>300	1	525	11	2.1	105	1	0.9
Cabrero Reservoir	1	>300	1	525	9	1.7	105	2	1.9
Cabrero System #1	1	2	1	525	0	0	105	0	0
Cabrero System #2	1	>300	1	525	0	0	105	0	0
Olivide Avenue System	1	>300	1	525	9	1.7	105	0	0
Summit Reservoir	1	100	1	525	67	12.8	105	11	10.5
Summit System	1	>300	1	525	2	0.4	105	0	0

SAN FRANCISCO WATER DEPARTMENT
MINERAL ANALYSES

Source	Crystal Springs Lines	San Andreas Lines
Date Sampled	May 2, 1960	May 2, 1960
CHEMICAL CONSTITUENTS	mg/1000 mls	mg/1000 mls
Cations:		
Calcium (Ca^{++})	7.7	10.4
Magnesium (Mg^{++})	1.6	2.9
Strontium (Sr^{++})	0.05	0.1
Sodium (Na^{+})	3.5	5.6
Potassium (K^{+})	0.2	0.4
Iron (Fe^{+++})	0.00	0.00
Aluminum (Al^{+++})	<0.01	<0.01
Manganese (Mn^{++} or Mn^{++++})	none detected	none detected
Ammonium (NH_4^{+})	0.03	0.04
Anions:		
Bicarbonate (HCO_3^{-}) *	24.4	36.7
Carbonate (CO_3^{--}) *	0.02	0.03
Chloride (Cl^{-}, including free Cl_2)	5.5	8.2
Sulphate (SO_4^{--})	5.3	7.2
Fluoride (F^{-}) **	0.9**	0.7**
Nitrate (NO_3^{-})	<0.1	<0.1
Phosphate (PO_4^{---})	0.01	0.01
Borate (BO_2^{-})	none detected	0.04 (B=0.01)
Nonionic Constituents:		
Iron oxide (Fe_2O_3)	0.04 (Fe=0.03)	0.03 (Fe=0.02)
Aluminum oxide (Al_2O_3)	0.1 (Al=0.06)	0.1 (Al=0.06)
Silica - total (SiO_2)	3.4	3.7
Organic material, calculated ***	9	8
Oxygen, dissolved (O_2)	9.4 at 14°C	10.1 at 14°C
Derived Values:		
Hardness as $CaCO_3$	25.7	37.4
Alkalinity as $CaCO_3$	20.1	30.2
Carbonate equivalent	12.0	18.1
Total Solids:		
Residue (103° - 105°C	50.1	67.2
Residue <180°C	49.4	65.7
Residue (calculated***	40.3	57.4
Sulphated ash, 800°C (found	48.5	69.6
Sulphated ash, 800°C (calculated	49.9	70.9
PHYSICAL MEASUREMENTS		
Conductivity	76 micromhos	106 micromhos
pH	7.2	7.2
Turbidity	1 turbidity unit	1 turbidity unit
Color	1 color unit	1 color unit

*Bicarbonate & carbonate are calculated from pH & total alkalinity.
**Raw waters contain 0.05 mg F^{-}/1000 mls. After fluoridation they contain 0.9 mg F^{-}/1000 mls, as the average of values for April and May, 1960.
***The difference between the residue at 180°C and the calculated residue is used to show approximately the amount of organic material.

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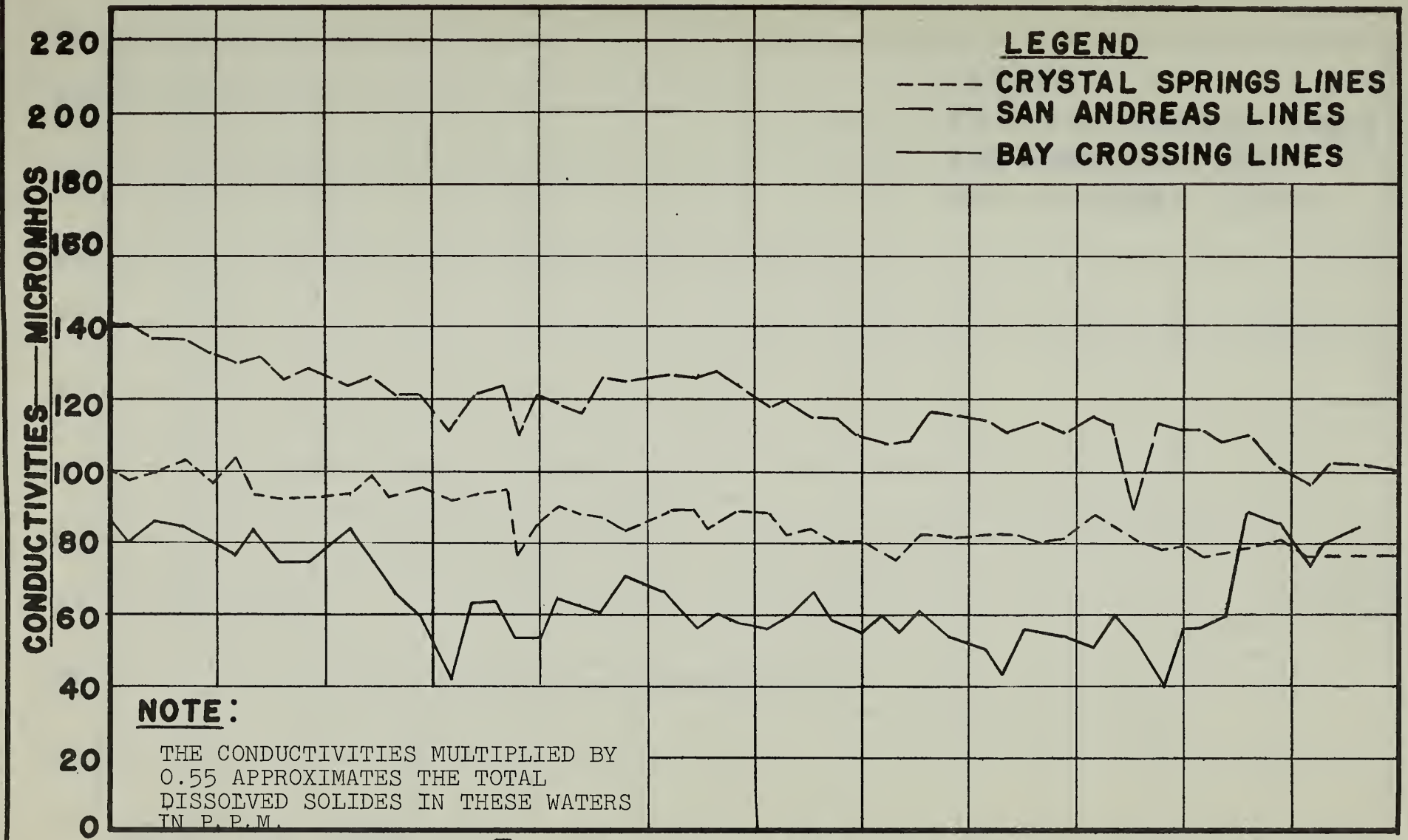
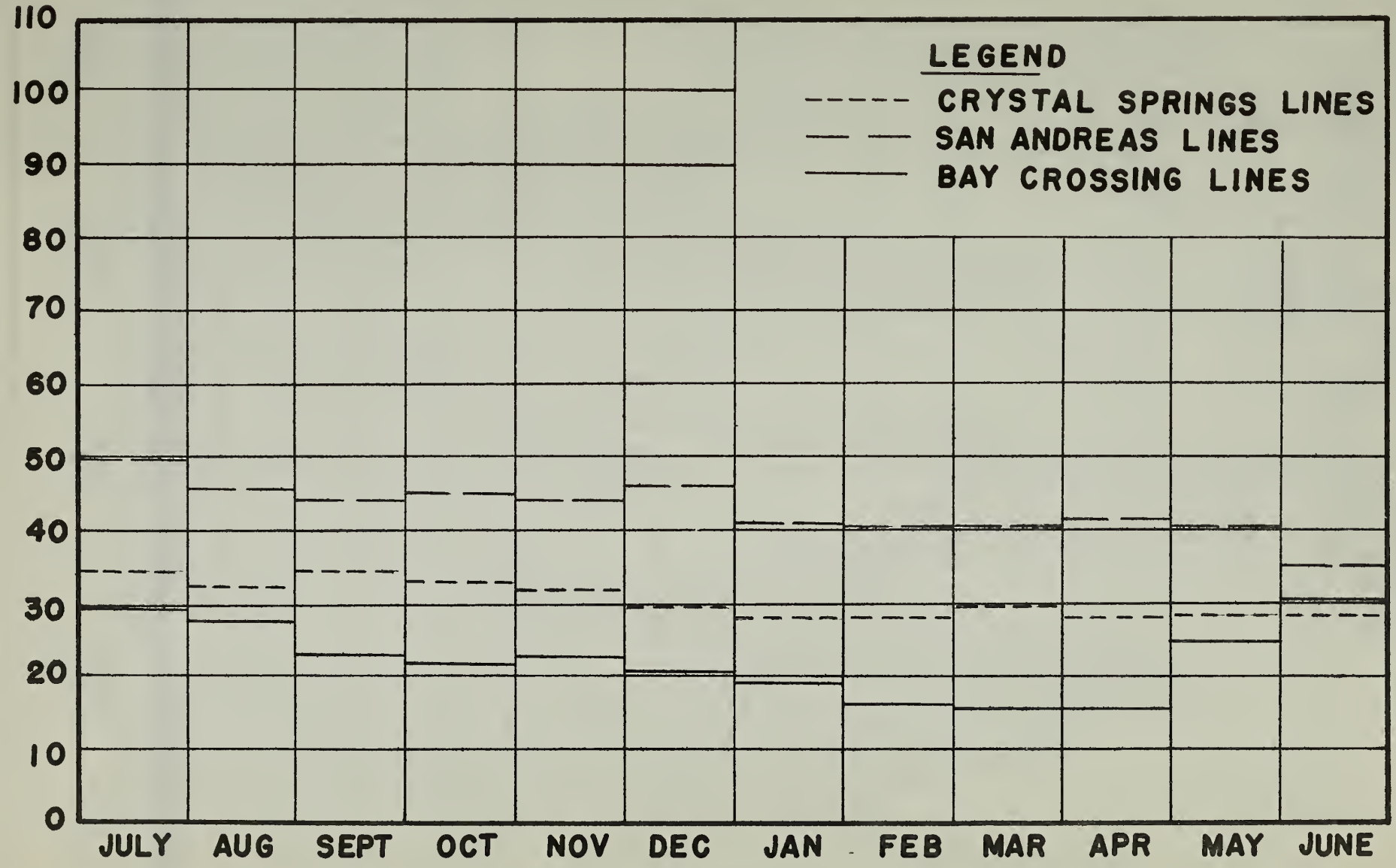
ELECTRICAL CONDUCTIVITIES OF WATER DELIVERED TO CONSUMERS

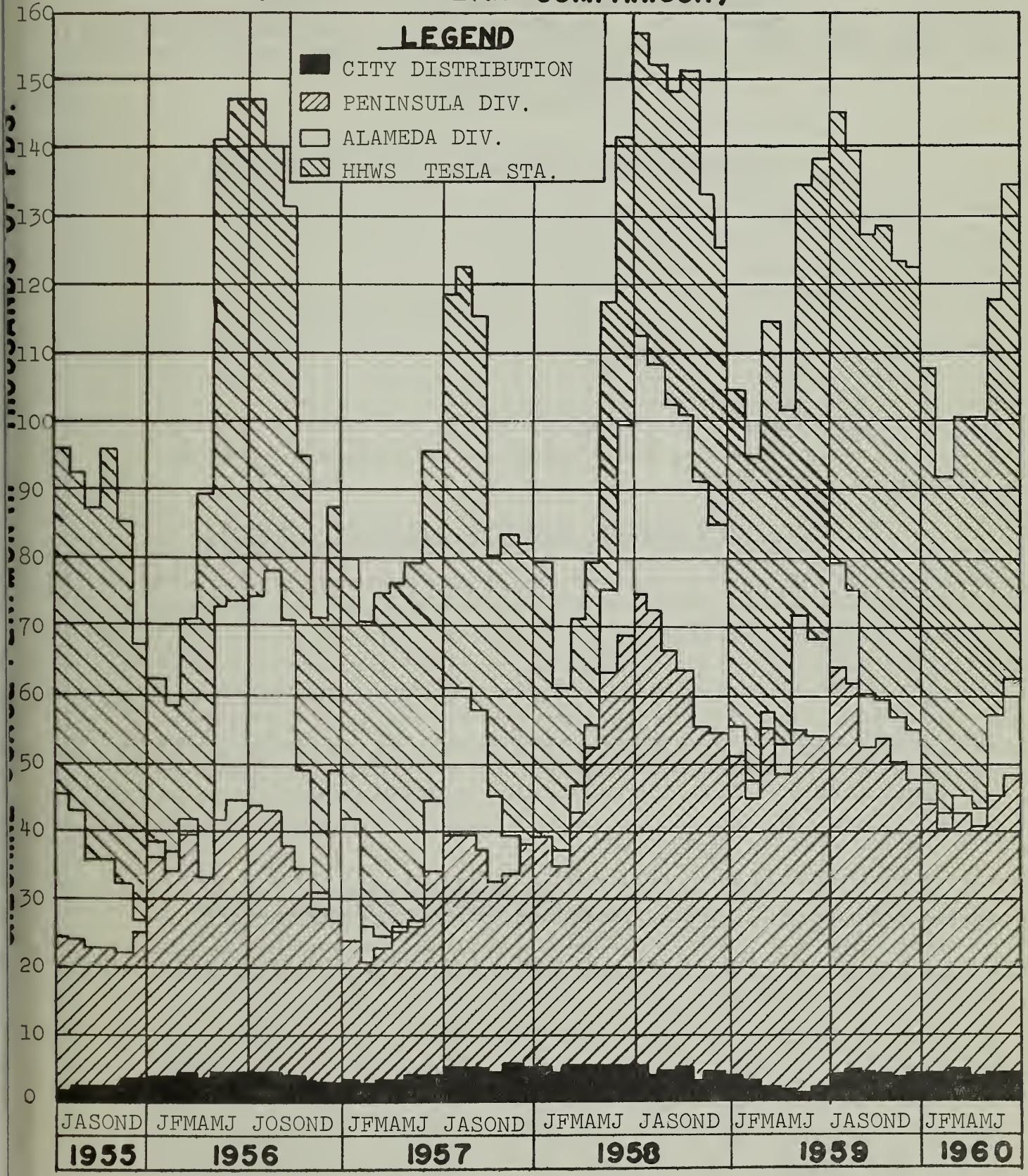
1959 — 1960



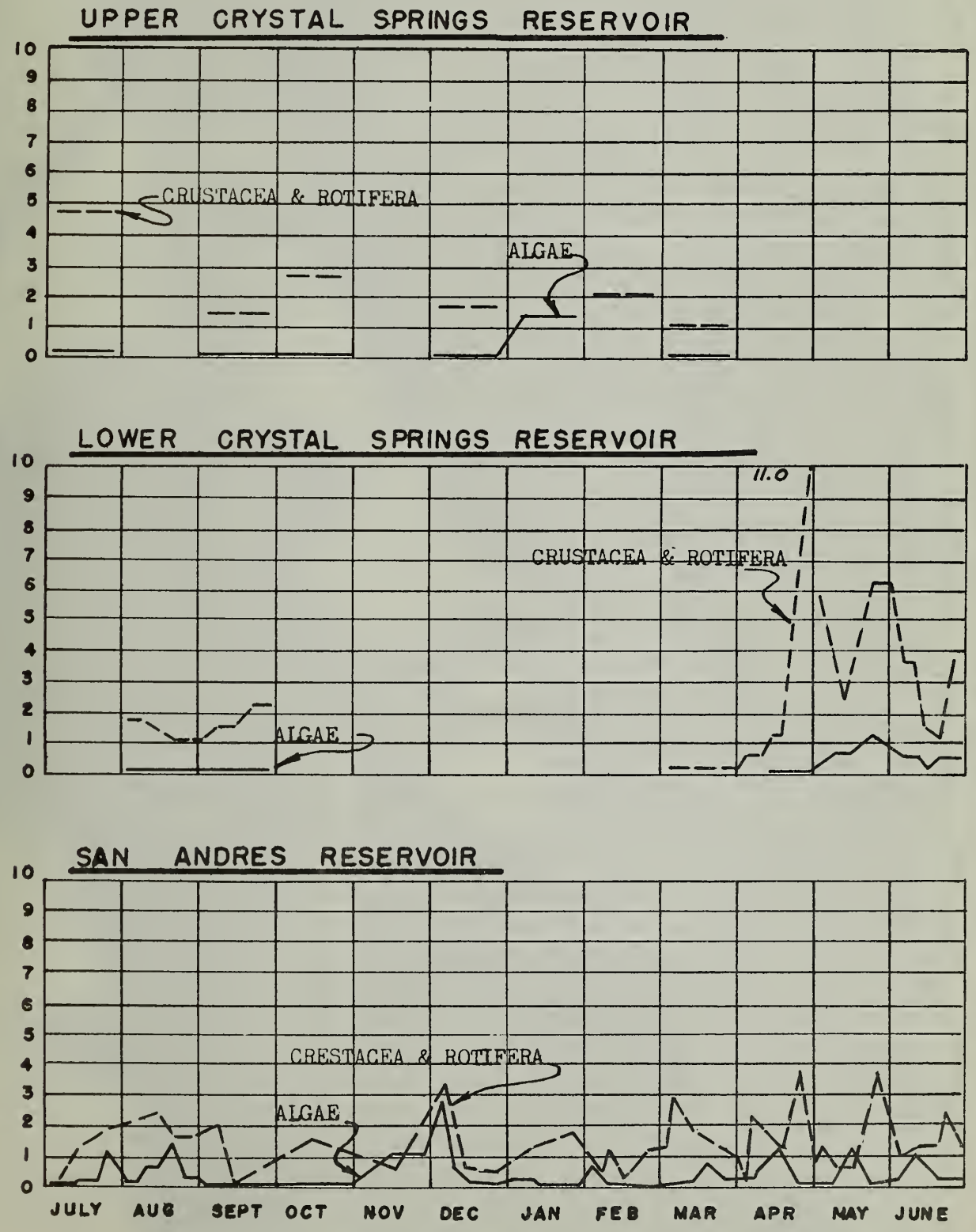
HARDNESS OF WATER
DELIVERED TO CONSUMERS 1959—1960
(MONTHLY AVERAGES—PARTS PER MILLION AS $CaCO_3$)



MONTHLY CHLORINE USAGE IN WATER SUPPLY SYSTEM
(PAST FIVE YEAR COMPARISON)



PENINSULA RESERVOIRS
MICROSCOPICAL ORGANISMS C.C. PER CU. METER
1959—1960

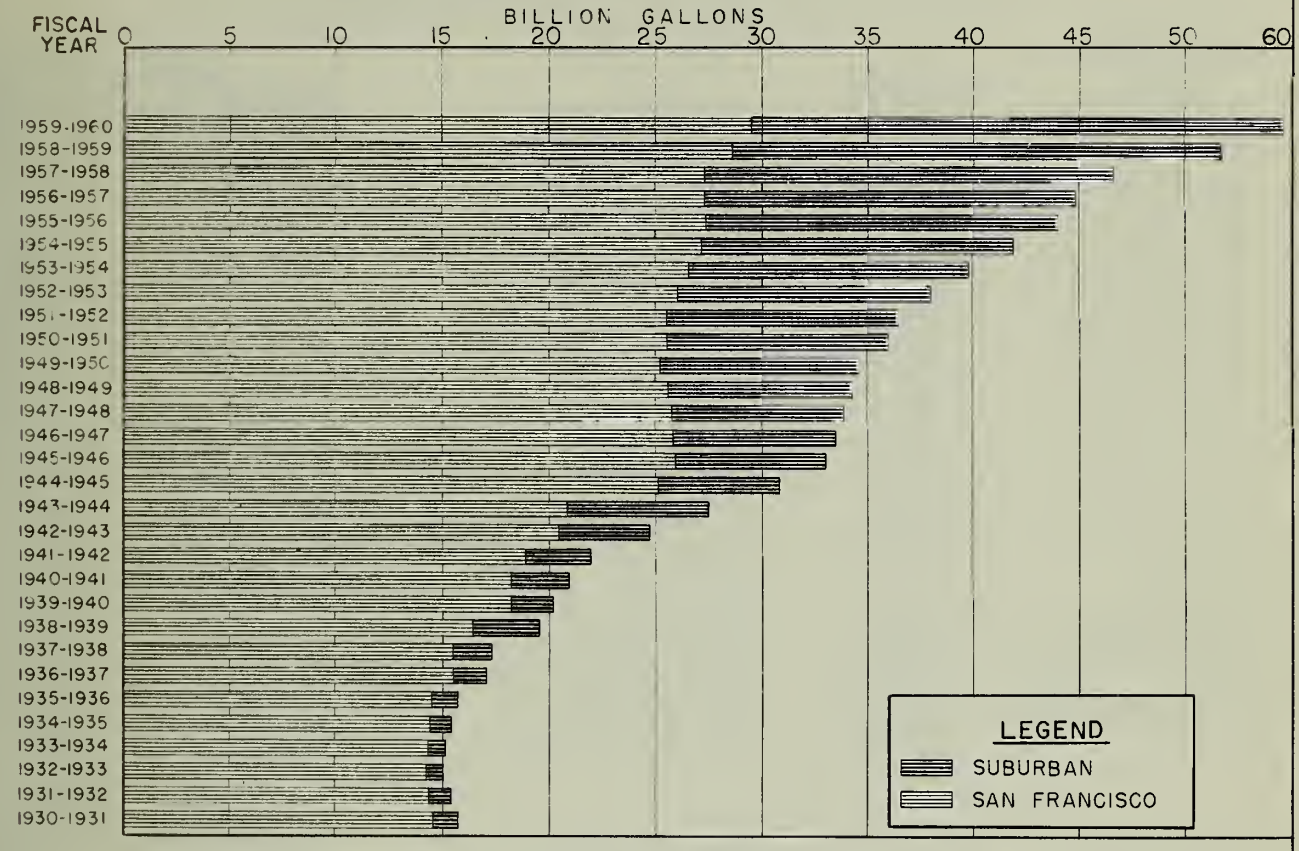


LINING OF 90-YEAR OLD COLLEGE HILL RESERVOIR

COPY NEG. X-6071
FROM X-5642
5-20-60

SAN FRANCISCO WATER DEPARTMENT

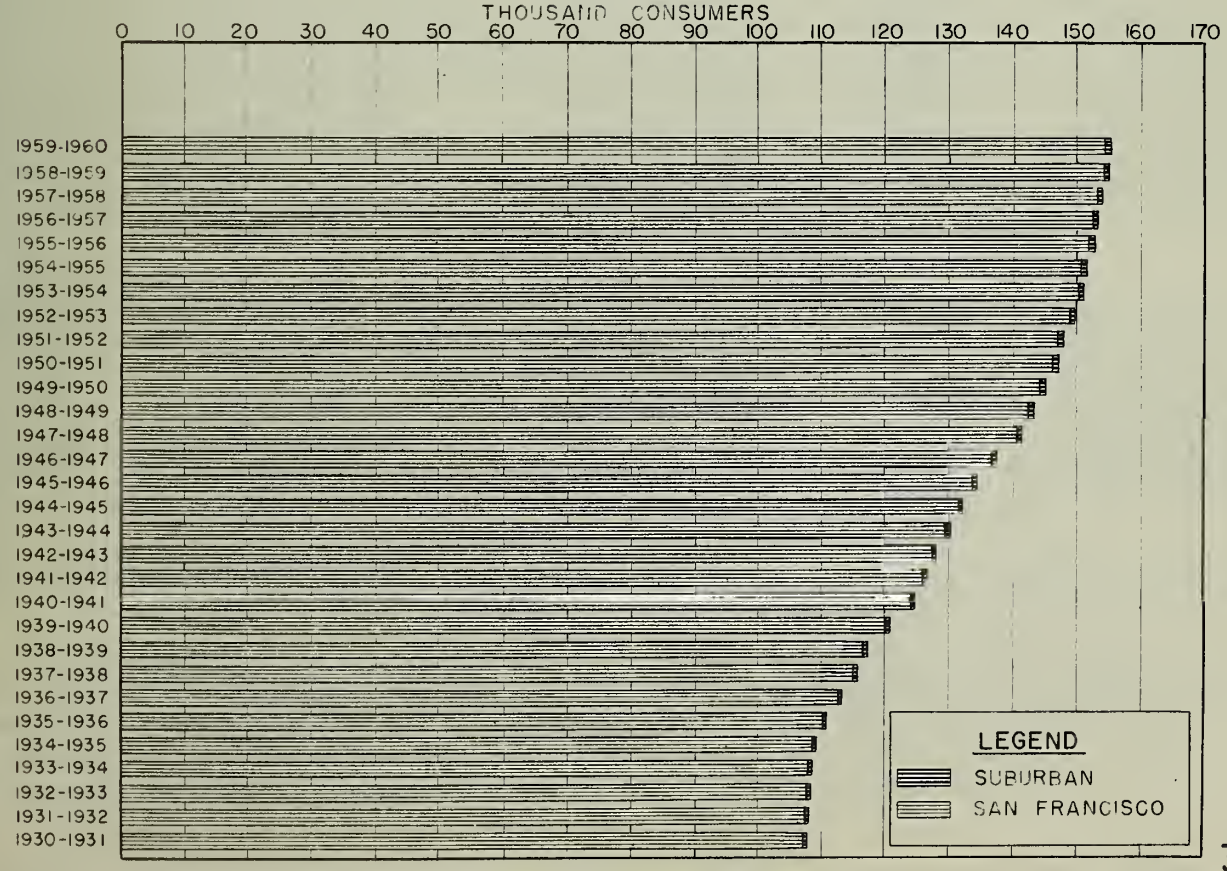
WATER DELIVERED AT CONSUMERS METERS



SAN FRANCISCO WATER DEPARTMENT

NUMBER OF ACTIVE CUSTOMER ACCOUNTS

AS OF JUNE 30



X-1124 F

WATER SOLD IN SUBURBAN AREA
FISCAL YEAR 1959-1960

	CUBIC FEET TOTAL FOR YEAR	M.G.D.	CHARGE TOTAL FOR YEAR
SAN MATEO COUNTY			
MUNICIPAL UTILITIES			
City of Redwood City	284,373,500	5.81	$ 472,314.76
City of Burlingame	176,864,300	3.62	298,281.37
Town of Hillsborough	111,245,400	2.28	189,030.44
City of San Bruno	100,096,000	2.05	169,386.44
Belmont County Water Dist.	99,235,400	2.03	165,186.67
City of Millbrae	82,320,400	1.68	143,362.16
Ravenswood Water Dist.	72,360,700	1.48	119,982.58
Menlo Park Muni. Water Dist.	61,803,500	1.26	104,985.15
North Coast County Water Dist.	45,647,400	0.93	76,160.10
City of Daly City	26,249,600	0.54	47,081.16
Dimond Public Utilities Dist.	13,864,300	0.28	26,216.20
Brisbane County Water Dist.	11,341,600	0.23	22,425.77
Coastside County Water Dist.	9,199,600	0.19	17,049,62
Palomar Park Co. Water Dist.	2,144,800	0.04	4,933.16
Cordilleras Mutual Water Assn.	319,300	0.01	940.15
Guadalape Valley Mun.Impr.Dist.	141,400	-	732.60
Airport	43,220,800	0.88	79,850.63
TOTAL MUNICIPAL UTILITIES	1,140,428,000	23.31	$1,937,918.96
Other Water Sold	1,280,549,900	26.17	2,170,339.04
TOTAL SAN MATEO COUNTY	2,420,977,900	49.48	$4,108,258.00
SANTA CLARA COUNTY			
MUNICIPAL UTILITIES			
City of Palo Alto	213,185,300	4.36	360,327.41
City of Sunnyvale	114,480,200	2.34	192,089.06
City of Mountain View	64,787,500	1.32	115,044.60
Milpitas County Water Dist.	59,206,700	1.21	104,587.90
Purissima Hills Co.Water Dist.	9,367,900	0.19	17,783.48
Oak Hill Mutual Wtr.Co.(LosAltos)	551,600	0.01	1,525.28
TOTAL MUNICIPAL UTILITIES	461,579,200	9.43	$ 791,357.73
Moffett Field	54,533,300	1.12	86,739.20
Other Water Sold	10,022,500	.20	24,303.68
TOTAL SANTA CLARA COUNTY	526,135,000	10.75	$ 902,400.61
ALAMEDA COUNTY			
MUNICIPAL UTILITIES			
Hayward Mun. Water System	273,964,900	5.60	$ 445,312.90
Alameda County Water Dist.	56,625,800	1.16	102,775.76
City of Pleasanton	1,381,900	0.03	3,334.43
TOTAL MUNICIPAL UTILITIES	331,972,600	6.79	$ 551,423.09
Other Water Sold	43,524,000	0.89	85,746.55
TOTAL ALAMEDA COUNTY	375,496,600	7.68	$ 637,169.64
TOTAL WATER SOLD SUBURBAN AREA	3,322,609,500	67.91	$5,647,828.25

These quantities are measured by the consumers' meters and at least 10% must be added to them in order to determine the quantities of water required to be produced and released for consumption in each case. This is true for all quantities of water shown in this "Distribution and Consumption" section of the Annual Report.

DISTRIBUTION AND CONSUMPTION

GENERAL:

Within the City of San Francisco the Water Department distributes and delivers water to its many cusumers. Outside of San Francisco consumers buying water from the Department take delivery at the transmission mains, with distribution of the water beyond the point of delivery being through the consumers' facilities. However, the Department distributes water in Garden Village in the northern part of San Mateo County and in Sunol, Alameda County, both being obligations of long standing.

RESERVOIRS AND TANKS:

The west basin of Stanford Heights Reservoir was drained, cleaned, the cracks repaired, filled with mastic and painted. The reservoir was put back into service on February 9, 1960, after being disinfected.

On April 7, 1960 Lombard Reservoir was put back into service after being cleaned and disinfected.

After considerable investigation the 44-inch pipe and valve controlling the flow between the north and south bodies of water at Lake Merced was located. The cross-connection between the two bodies was clogged with debris and muck which will be removed.

College Hill Reservoir on April 4, was taken out of service for the purpose of cleaning, reconstructing the lining and constructing a roof, The College Hill District was supplied water from the Sunset District by manual operation of the connection valves.

Fairview Tank and pump station were abandoned on April 25, 1960 due to the Diamond Heights Redevelopment Project. Temporary mains were installed to maintain the water supply to areas formerly supplied by this pump and tank.

A meter was installed on the outlet pipe at Summit Reservoir to control the chlorination of the water served the consumers in that District.

FEEDER MAINS:

The 16-inch feeder main connecting the Summit Reservoir service area to the Forest Hill Tanks was laid. This will permit the abandonment of the Forest Hill Pumps and the old screen house located on Laguna Honda Boulevard near Clarendon Avenue.

Three feeder mains were cement mortar lined during the year. The 30-inch main from south of Tingley and San Jose to Diamond and Wilder, the 22-inch main in Divisadero from the north line of

Fulton to the north line of Geary and the 16-inch main from Harold and Bruce to Flood and Circular. The latter pipeline from Circular and Flood to Diamond and Chenery was placed out of service pending freeway construction work in the area; to make this possible two connections were made off the 36-inch Sunset Reservoir Feeder Main, one at Flood and Circular the other at Natick and Arlington.

PIPE SYSTEM:

Routine extensions were made of 4, 6 and 8-inch cast iron mains during the year, both under contracts and by the forces of the Department.

Again this year the program for replacing seriously small mains with larger ones was continued. This work was closely coordinated with the street reconstruction and resurfacing program of the Department of Public Works.

Of the 50,492 feet of pipe laid in the City during the year, 38,167 feet were 6-inch and 8-inch which amounts to 75.6 percent of the total. There were 19,566 feet of 4-inch and smaller pipe in the City Distribution system removed or abandoned, most of it being replaced with 6 and 8-inch cast iron pipe.

Pipe tables showing lengths of various sized pipe laid, removed or abandoned, and totals in the City system, together with a record of the various types and sizes of valves, are to be found in the Appendix.

PUMP STATIONS:

The small Palo Alto Hydropneumatic Pump Station which served a few consumers in the upper reaches of the Twin Peaks area was replaced during the year with a similar installation of larger capacity. This new station serves the consumers formerly supplied from the smaller station and in addition serves certain consumers formerly supplied from the Twin Peaks tank, which was removed during the year as a result of the change in operations.

All pumping stations in the City, which were in use, operated without any serious trouble. Alemany pumps were not used during the year, but are ready for use if occasion demands.

SERVICES AND METERS:

In the San Francisco District there were 1,585 orders issued for new services during the fiscal year and, in addition, there were 1,770 orders for renewal of service issued resulting from inspections which disclosed an inadequate supply of water. Also renewed were 1,259 services which were found to be in bad condition by the City Distribution Division, which makes a total of 3,049 services renewed during the year. On June 30, 1960 there were 155,754 metered live services not including 788 sprinkler

installations. At the end of the year there were 158,561 meters in service in San Francisco, including those temporarily shut off.

Forty-four new suburban services were installed during the year and meters were installed thereon ranging in size from 5/8 inch to 16 inch. Nine services were enlarged and 29 were discontinued. The net change was an increase of 15 suburban services leaving a total of 715 as of June 30, 1960. On that date there were 1,017 meters in service in the suburban area including those temporarily shut off.

Active accounts in the suburban area increased from 667 to 699 during the year, an increase of 32. In San Francisco active accounts increased from 154,063 on June 30, 1959 to 154,367 on June 30, 1960, a gain of 304. For the entire system, the net increase was 336 active accounts, or 0.2 percent.

The District Servicemen again made over 30,000 calls during the year. Most of these calls were for the purpose of turning on or shutting off water and reading meters for closing bills, all at customers' requests.

All meter readings continue to be audited and, where any of the readings appear to be at variance with the usage normally expected, billing is usually held up pending an inspection by a Water Service Inspector. An average of more than 2,000 accounts each month were handled in this manner. This procedure continues to find favor with our customers who have larger than normal usage, for they appreciate our interest in checking on the larger usage and, where leaks are found, they can make immediate repairs, thereby arresting further excess billing. This practice also locates meters that fail to properly register the water consumed.

Tables "A" through "F" following relate to services and meters in San Francisco and Suburban areas as indicated:

TABLE "A"
SERVICES INSTALLED*
NEW AND RENEWED
SAN FRANCISCO

Service Size	1955-56	1956-57	1957-58	1958-59	1959-60
3/4"	1133	1535	1790	2967	2367
1"	993	643	770	1086	1486
1½"	137	123	192	208	219
2"	61	72	75	108	124
3"	16	20	16	18	23
4"	8	7	8	13	18
6"	3	3	4	29	19
8"	-	2	2	10	14
12"	1	-	-	-	-
Total	2352	2405	2857	4439	4270
%3/4 "	48.2	63.8	62.7	66.8	55.4
%1"	42.2	26.7	27.0	24.5	34.8

* Not including Fire Sprinkler Services.

TABLE "A" (Cont'd)

SUBURBAN

Service Size	1955-56	1956-57	1957-58	1958-59	1959-60
5/8"	-	-	-	-	16
3/4"	15	18	9	3	6
1"	6	7	4	1	4
1½"	-	1	3	-	4
2"	10	6	6	17	5
Larger than 2"	10	9	4	8	9
Total	41	41	26	29	28
Additional Services					
Enlarged	8	1	5	4	9
Reduced	-	1	1	2	2

TABLE "B"

METERS SET

SAN FRANCISCO

Meter Size	1955-56	1956-57	1957-58	1958-59	1959-60
5/8"	1492	1068	1165	1306	1068
3/4"	32	198	262	316	406
1"	159	146	136	190	239
1½"	66	67	89	112	87
2"	175	208	227	247	233
3"	-	-	-	-	-
4"	1	-	-	-	-
6"	-	-	-	-	1
8"	-	-	-	-	1
Total	1925	1687	1879	2171	2035
% 5/8"	77.5	63.3	62.0	60.2	52.5
% 3/4"	1.6	11.7	14.0	14.5	20.0
% 1"	8.4	8.7	7.2	8.7	11.7
% 1½"	3.4	4.0	4.7	5.2	4.3
% 2"	9.1	12.3	12.1	11.4	11.4

TABLE "B" (Cont'd)

SUBURBAN

Meter Size	1955-56	1956-57	1957-58	1958-59	1959-60
5/8"	12	16	9	3	16
3/4"	3	2	-	-	6
1"	6	7	5	1	4
1½"	-	1	3	-	4
2"	28	6	17	19	15
4"	1	1	1	2	-
6"	4	6	5	1	4
8"	9	7	3	10	10
10"	-	-	-	3	-
12"	-	-	-	-	1
16"	-	-	-	-	3
Total	63	46	43	39	63

TABLE "C"

METER SET CHANGES*

SAN FRANCISCO

Meter Size	1955-56	1956-57	1957-58	1958-59	1959-60
5/8"	3141	3302	3353	4292	4026
3/4"	156	108	73	111	183
1"	112	111	89	117	132
1½"	65	48	65	87	108
2"	96	111	108	166	149
3"	-	-	-	-	-
4"	-	-	-	-	-
6"	-	-	-	-	-
8"	-	-	-	-	-
Total	3570	3680	3688	4773	4598
% 5/8"	88.0	89.7	90.9	89.9	87.6
% 3/4"	4.4	2.9	2.0	2.3	4.0
% 1"	3.1	3.0	2.4	2.5	2.9

* For all causes, but mainly for "no goes".

TABLE "D"

METERS HOME*

SAN FRANCISCO

Meter Size	1955-56	1956-57	1957-58	1958-59	1959-60
5/8"	553	792	955	1476	1317
3/4"	23	26	26	39	40
1"	43	39	43	38	43
1½"	19	30	28	38	45
2"	109	84	85	85	106
3"	-	2	-	-	2
4"	3	-	1	1	-
6"	3	-	-	-	-
8"	1	-	-	-	-
Total	754	973	1138	1677	1553
% 5/8"	73.3	81.4	83.9	88.0	84.8
% 3/4"	3.0	2.7	2.3	2.3	2.6
% 1"	5.7	4.0	3.8	2.3	2.8

* Meter brought to the shop and not replaced.

TABLE "E"

FIRE SPRINKLER SERVICES INSTALLED

SAN FRANCISCO

Service Size	1955-56	1956-57	1957-58	1958-59	1959-60
3"	-	-	-	-	3
4"	4	1	3	6	13
6"	14	26	24	26	13
8"	11	9	17	10	18
12"	-	-	-	-	-
Total	29	36	44	42	47

TABLE "F"

ABANDONED DOMESTIC SERVICES

SAN FRANCISCO

Meter size	1955-56	1956-57	1957-58	1958-59	1959-60
3/4"	916	1050	1317	2575	1943
1"	85	269	369	511	840
1½"	12	42	88	88	125
2"	11	17	23	31	40
3"	-	-	2	1	2
4"	-	-	-	-	-
6"	-	-	-	-	-
8"	-	-	-	-	-
Total	1024	1378	1799	3206	2950
% 3/4"	89.4	76.2	73.2	80.3	65.9
% 1"	8.3	19.5	20.5	15.9	28.5

MAINTENANCE AND OPERATION:

A program for regular inspection, repair and maintenance of gate valves, air valves, blowoffs, etc. on a City wide basis was commenced on January 25, 1960 and carried on throughout the year within the limits of available funds. This will be a continuing program of preventive maintenance and reconstruction which is necessary for these facilities. During the year about 1,900 gate valves were inspected, 35% of which required some repairs or maintenance work.

Flushing of the distribution mains was carried on throughout the year to eliminate turbidity, taste and odor difficulties at the ends of mains and in response to complaints.

The City Distribution Division, working ahead of the track removal and reconstruction of Geary Street between Market and Franklin Streets, removed obsolete services, renewed depreciated and undersized old services and performed other necessary work found through survey. This work was coordinated with that of the Department of Public Works and the least possible interference to traffic and business resulted.

The various shops at 639 Bryant Street continued with routine maintenance and repair work and in addition to this the facilities and personnel of the shops were available at all times for emergency work throughout the system. During the year this service

has saved much time and expense on numerous occasions, when equipment and facilities failed and the making of emergency repairs was necessary.

All maintenance and repair of the Department's various automobiles, trucks and equipment used within the City was carried out in these shops. Body and fender work, major repair work, and painting of vehicles was performed for all divisions of the Department.

The Yard Office at 639 Bryant Street again carried out a variety of assignments involving the handling and control of materials and supplies, tools and equipment, timekeeping, cost analysis and other accounting matters, along with the processing of orders relating to the operation, maintenance and construction of the City Distribution System.

The Meter Shop continued making repairs, rebuilding and testing various sizes and types of meters used to measure the consumer's use of water. During the year, 4,598 meters in service were replaced for all causes, but mainly because of under registration. All meters are tested for accuracy before being installed and in some cases rebuilt or repaired before being tested.

COMPLAINTS:

Tables No. 20, 21 and 22 in the Appendix give a comparison of the different types of complaints and inquiries.

Special Service inspections made during the year totaled 2,868. There were 1,181 of the total inspections made prior to street construction or water main replacement projects. Service installations were made at that time, where found to be necessary, to avoid later reopening of completed street work. The backlog of service renewal orders was reduced from 250 at the beginning of the year to 83 on June 30, 1960.

Large bills were again the principal source of common complaint. Of the consumer's complaints of poor supply 129 were false reports, and in 276 investigations it was found to be the consumer's responsibility, their house pipe and/or valve being the cause of the trouble. The Department's service, main or a temporary shutdown accounted for the balance of 92 complaints.

Further progress was made during the year in the program for replacing seriously small mains with larger mains, thus tending to reduce the number of "poor supply" complaints which originate because of inadequate size of mains. Additional feeder mains were laid to improve pressure conditions and certain area of comparatively low pressure were transferred to sources affording higher pressure.

The Department has continued its policy of giving aid to our consumer cities in the suburban areas in their investigation of water quality complaints.

CONSUMPTION:

Within the limits of San Francisco the total registration through the customers' meters was 3,950.3 million cubic feet (29,548.2 million gallons) which includes 267.8 million cubic feet (2,003.1 million gallons) used by Municipal Non-pay accounts. This total averaging 80.7 million gallons per day, is 127.8 million cubic feet (955.9 million gallons) or 3.34% more than registered the previous fiscal year.

In the suburban area the total registration through customers' meters was 3,366.9 million cubic feet (25,184.4 million gallons), which includes 44.3 million cubic feet (331.4 million gallons) used by Municipal Non-pay accounts. This total, averaging 68.8 million gallons per day, is 271.6 million cubic feet (2,031.6 million gallons) or 8.77% more than registered the previous year.

The total system registered consumption of 7,317.2 million cubic feet (54,732.6 million gallons) averaged 149.5 million gallons per day, an increase of 399.4 million cubic feet (2,987.5 million gallons) or 7.7 million gallons per day, representing an increase of 5.77% over the previous year.

San Francisco consumers used 54.% and Suburban consumers used 46.% of the total metered quantity during 1959-60. The past years' records again indicate that as time goes on the Suburban consumers are using a greater percentage and the San Francisco consumers a lesser percentage of the total system consumption.

Included in the foregoing is water delivered to Municipal Utilities and Water Districts in the Suburban area, taking water for resale in an amount of 1,934.0 million cubic feet (14,466.3 million gallons), averaging 39.5 million gallons per day. Water delivered to private utilities in the same area totaled 1,218.9 million cubic feet (9,117.4 million gallons), averaging 24.9 million gallons per day.

The following table shows the amount of water withdrawn by consumers (metered delivery) together with the quantities provided from sources to supply these deliveries (consumption). The difference between the two sets of figures represents the system losses and non-metered uses which are explained in the footnotes of the table.

DELIVERIES AND CONSUMPTION
FROM
SAN FRANCISCO WATER DEPARTMENT SOURCES
FISCAL YEAR 1959-60

No.	Area, Utility or District	Metered Delivery Cu. Ft. Year	MGD	Consumption (1) MGD	Ac.Ft. Year
	San Mateo County				
1	Bayshore City (Diamond Utility District)	13,864,300	0.28	.31	350
2	Brisbane County Water Dist.	11,341,600	0.23	.25	286
3	Daly City	26,249,600	0.54	.59	663
4	Colma (Calif.Water Serv.Co.)	27,506,100	0.56	.62	695
5.	South San Francisco (Calif. Water Serv. Co.)	212,873,900	4.36	4.80	5,376
6	North Coast County Water Dist.	45,647,400	0.94	1.03	1,153
7	Coastside County Water Dist.	9,199,600	0.19	.21	232
8	San Bruno	100,096,000	2.05	2.26	2,528
9	S. F. International Airport Water Sold 43,220,800 Cu.Ft. S. F. Use 4,615,200 " " (2)	47,836,000	.98	1.08	1,208
10	Millbrae	82,320,400	1.69	1.86	2,079
11	Burlingame	176,864,300	3.62	3.98	4,466
12	Hillsborough	111,245,400	2.28	2.51	2,809
13	Crystal Springs Golf Club(2)	14,673,000	.30	.33	371
14	San Mateo (Calif. Water Serv. Co.)	435,739,400	8.93	9.82	11,004
15	Belmont County Water Dist.	99,235,400	2.03	2.23	2,506
16	San Carlos (Calif. Water Serv. Co.)	88,087,200	1.80	1.98	2,224

DELIVERIES AND CONSUMPTION
FROM
SAN FRANCISCO WATER DEPARTMENT SOURCES
FISCAL YEAR 1959-60

(Continued)

No.	Area, Utility or District	Metered Delivery Cu. Ft. Year	MGD	Consumption(1) MGD	Ac.Ft. Year
	San Mateo County (Cont'd)				
17	Redwood City	284,373,500	5.83	6.41	7,181
	Redwood City (Calif. Water Serv. Co.)	84,287,900	1.73	1.90	2,128
	Cordilleras Mutual Water	319,300	0.01	0.01	8
	Palomar Park Co. Water Dist.	2,144,800	0.04	0.04	54
18	Woodside (Calif. Water Serv. Co.)	102,564,500	2.10	2.31	2,590
19	To Bear Gulch Reservoir (Calif. Water Serv. Co.)	66,126,200	1.35	1.49	1,670
20	Menlo Park Muni.Water Dist.	61,803,500	1.27	1.40	1,561
	Menlo Park (Calif. Water Serv. Co.)	180,470,400	3.70	4.07	4,557
21	Ravenswood Water Dist.	72,360,700	1.48	1.63	1,827
22	City of San Francisco				
	County Jail (2)	21,743,600	.45	.49	549
	Public Welfare (2)	518,500	.01	.01	13
	Hassler Health Home (2)	2,764,200	.06	.07	70
	Other Water delivered in San Mateo County	83,035,700	1.70	1.87	2,097
	Total for San Mateo County	2,465,292,400	50.51	55.56	62,255
	Santa Clara County				
23	Palo Alto	213,185,300	4.37	4.81	5,383
24	Oak Hill County Water Dist.	551,600	0.01	.01	14
	Purissima Hills Co.Water Dist.	9,367,900	0.19	.21	237
25	Mountain View	64,787,500	1.33	1.46	1,636
26	Moffett Field	54,533,300	1.12	1.23	1,377
27	Sunnyvale	114,480,200	2.35	2.59	2,891
28	Agnew State Hospital	759,500	0.01	0.01	19

DELIVERIES AND CONSUMPTION
FROM
SAN FRANCISCO WATER DEPARTMENT SOURCES
FISCAL YEAR 1959-60

(Continued)

No.	Area, Utility or District	Metered Delivery Cu. Ft. Year	MGD	Consumption(1) MGD	Ac.Ft. Year
	Santa Clara County (Cont'd)				
29	Milpitas Co. Water Dist	59,206,700	1.21	1.33	1,495
30	Other water delivered in Santa Clara County	9,263,000	0.19	0.21	234
	Total for Santa Clara County	526,135,000	10.78	11.86	13,286
	Alameda County				
31	Alameda County Water Dist.	56,625,800	1.16	1.28	1,430
32	Newark (various consumers)	8,432,700	0.17	0.19	213
33	Hayward Municipal Water System	273,964,900	5.62	6.18	6,918
34	Sunol				
	Domestic Supply	2,033,600	.04	0.04	51
	Water Dept. Lands (2) From Transmission Lines	50,938,400	1.04	1.14	1,286
	Water Dept. Lands(2)(3)Est'd Not from Transmission Lines	2,664,200	0.05	0.05	67
35	Vallecitos	12,385,900	0.25	0.27	313
36	Castlewood Country Club	3,294,300	0.07	0.08	83
37	City of Pleasanton				
	Water Sold (3)	1,381,900	0.03	0.03	35
	Other Water Delivered(2)(3)	27,858,800	0.57	0.63	704
38	Pleasanton Well Field Agricultural Use (2) (3) Estimated	27,970,200	0.57	0.63	706
39	Other water delivered in Alameda County	17,377,500	0.36	0.40	439
	Total for Alameda County	484,928,200	9.93	10.92	12,245

DELIVERIES AND CONSUMPTION
FROM
SAN FRANCISCO WATER DEPARTMENT SOURCES
FISCAL YEAR 1959-60

(Continued)

No.	Area, Utility or District	Metered Delivery Cu. Ft. Year	MGD	Consumption(1) MGD	Ac. Ft. Year
	Total for San Mateo, Santa Clara and Alameda Counties	3,476,355,600	71.22	78.34	87,786
	San Francisco County				
	San Francisco (2)	3,950,339,000	80.94	91.28	102,253
	From Well and Lake Merced (2) (3)	22,214,200	.46	.50	561
	From Golden Gate Park Wells (2) (3) Estimated	40,463,100	.83	.91	1,022
	Total for San Francisco County	4,013,016,300	82.23	92.69	103,836
	Total for San Francisco Water Department System	7,489,371,900	153.45	171.03	191,622

Notes for tabulations on Pages

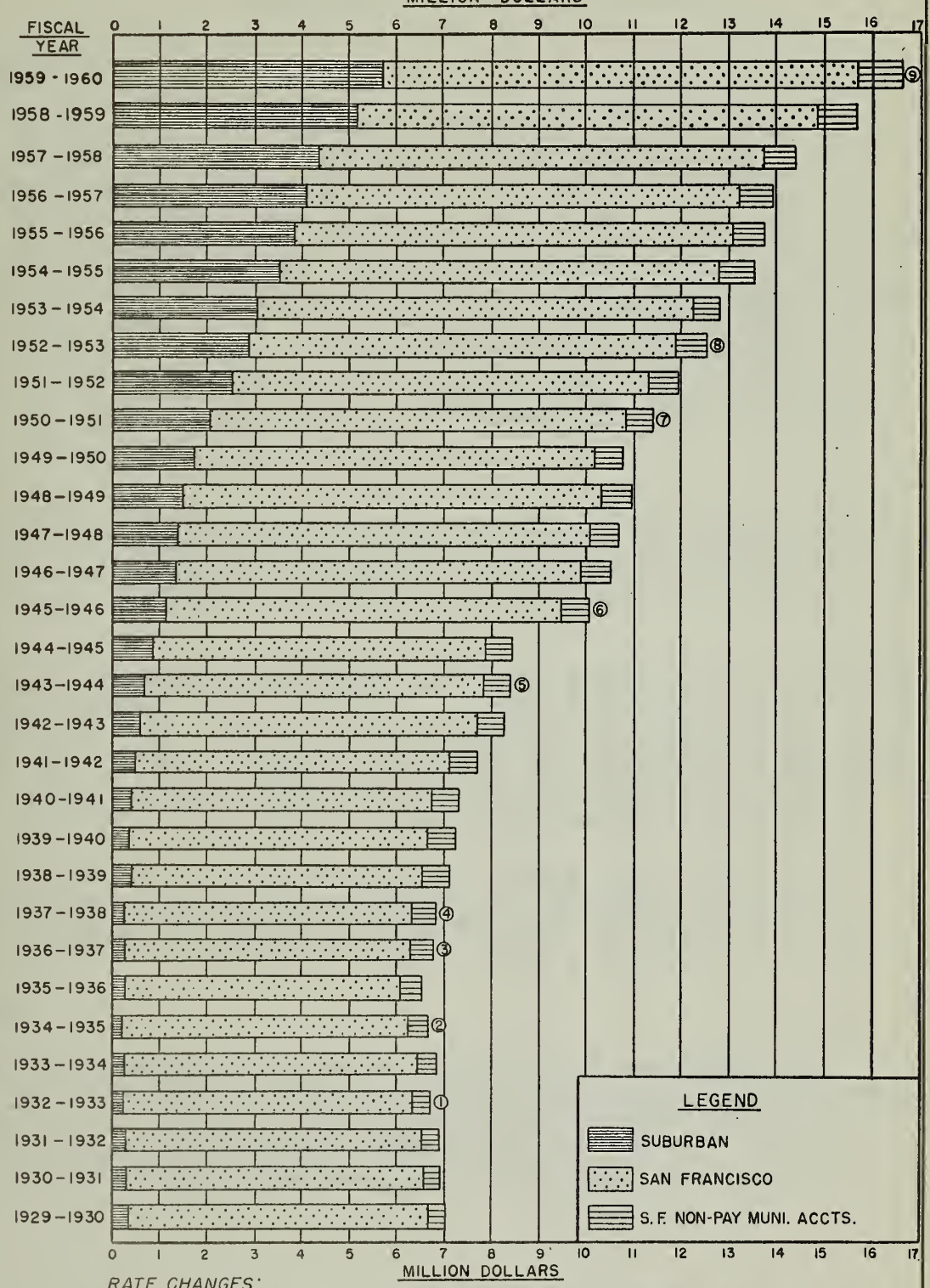
(1) Consumption is system input. The difference between "consumption" and "metered delivery" consists of system losses and uses including leakage, losses due to pipe breaks, under-registration of meters, water used at hydrants that is not billed, blowoff water, water used for Water Department operating purposes, evaporation from distribution reservoirs and other similar losses.

(2) This water is not included in the tabulation "Water sold in Suburban Area Fiscal Year 1959-60" of the Water Department's 1959-60 Annual Report, as water sold.

(3) This water is not included in the 167.84 M.G.D. system input reported in the Water Department's 1959-60 Annual Report.

SAN FRANCISCO WATER DEPARTMENT

WATER SALES



RATE CHANGES:

①	OCT.	26, 1932	75% REDUCTION ON FIRE SPRINKLER SERVICE CHARGES.
②	DEC.	1, 1934	10% REDUCTION ON ALL RATES EXCEPT HYDRANTS AND SPRINKLERS.
③	JAN.	1, 1937	7% & 48% REDUCTION ON INCREASED USAGE AT INDUSTRIAL & WHOLESALE RATES
④	JAN.	1, 1938	7% & 48% REDUCTION APPLIED TO ALL " " " " " "
⑤	DEC.	1, 1943	15% REDUCTION TO ALL CONSUMERS WITHIN CITY & COUNTY OF SAN FRANCISCO.
⑥	SEPT.	1, 1945	PRECEDING 15% REDUCTION REMOVED FOR CONSUMERS WITHIN CITY & COUNTY OF SAN FRANCISCO. 15% INCREASE FOR SUBURBAN CONSUMERS
⑦	FEB.	1, 1951	INCREASE FOR FOURTH BLOCK WATER TO 15 CENTS FOR CITY & 16 CENTS FOR SUBURBAN; 10% DISCOUNT ON FOURTH BLOCK IF WATER WERE NOT TAKEN FOR RESALE.
⑧	JULY	1, 1952	BEGAN CHARGING REGULAR RATES TO 14 CONTRACT REDUCED RATES CONSUMERS.
⑨	JAN.	1, 1960	FOURTH BLOCK WATER TO 13.5 CENTS FOR CITY AND 15 CENTS FOR SUBURBAN. ONE CENT "DEMAND" CHARGE ADDED FOR RESALE ACCOUNTS. MINIMUM BILLING ADOPTED FOR 1" AND LARGER METERS. HYDRANTS AND SPRINKLERS IN CITY INCREASED TO $5.00 PER MONTH.

X-1124 C

R E V E N U E

WATER SALES:

Sales of water to our customers during the fiscal year 1959-60 grossed $16,626,586 including $949,682 of sales to other Municipal Departments in lieu of taxes and including $30,816 of allowances to customers. Our policy of allowing credits on customers' bills, where leakage occurred in house piping or fixtures and when the customer promptly made the necessary repairs, resulted in a customers' savings of $30,816 so that Net Sales amounted to $16,595,770. This is an increase over the previous year of $913,883 or 5.83% Net Sales in San Francisco, including $864,682 to other Municipal Departments in lieu of taxes, amounted to $10,863,110 or 65.5% of the total. Suburban Net Sales accounted for $5,732,660 or 34.5% of the total, including $85,000 to non-paying City of San Francisco Departments.

Included in the above was $3,280,700 derived from sale of water to Municipal Utilities and Water Districts in the Suburban Area. This is an increase of $361,591. Revenue from sale of water to private utilities amounted to $2,030,287, an increase of $69,950.

Customers' Accounts Receivable showed a balance of $1,062,378 due the Department on June 30, 1960. Again, this shows that about one-third of our billing is paid before the end of the month. Collections for the year were $15,672,127, an increase of $861,874. There were 956,928 bills issued during the year of which 897,151 were for bi-monthly accounts and 59,777 for monthly accounts.

Uncollectible bills totaled $11,253 being only 0.07% of Sales. The Suspense Balance, consisting of "Closed" accounts awaiting collection or write-off, was $21,090 on June 30, 1960. Backbilling of the "contract" accounts remains at $92,909.

OTHER INCOME:

Revenue from rentals including crop shares and royalties amounted to $338,525.08 for the year which is $38,177.53 more than the previous year. Rentals from Agricultural leases increased $16,714.33 and flat rate rentals increased $19,721.26. The Department's income from Royalties and percentages increased $1,741.94.

The walnut orchard was leased on May 1, 1959 for private operation on percentage rental. For the fiscal year 1959-60 the City received $15,626.99 on this lease. In 1958-59 the gross receipts from sale of walnuts was estimated to be $86,277.37 and the walnut orchard expenses were $63,971.49 a difference of $22,305.88.

Interest on bank balances increased over the previous year from $79,592.49 to $86,368.85.

Miscellaneous income of $8,905.32 was mainly from amounts collected on claims against contractors for damage to the Department's facilities.

C L A I M S

Claims filed by the Department during the year against others, principally street work contractors who damaged our facilities, amounted to 78 in number for a total of $7,189.79. Including the balance pending at the beginning of the year, 162 claims were processed against others for a total sum of $37,721.77. Of these, 76 were settled for $8,097.45 out of the original claims amount of $8,956.61 or 90.4% recovery. Claims against others pending on June 30, 1960 were 86 in number for a total amount of $28,765.16.

During the year, 130 claims in the total amount of $384,925.47 were filed against the Department. Claims pending at the beginning of the year numbered 246 for a total of $1,158,058.62 so that 376 claims in the total amount of $1,542,984.09 were processed. One hundred thirty nine claims totaling $1,112,470.16 were denied or settled for $71,842.49 which represented a saving to the Department on these claims of $1,040,627.67. On June 30, 1960, 237 claims in the sum of $430,513.93 remained. Of these, however, 203 claims totaling $336,509.39 relate to "contract" accounts which are in litigation, so that 34 claims in the total amount of $94,004.54 remained as a result of the Department's operations.

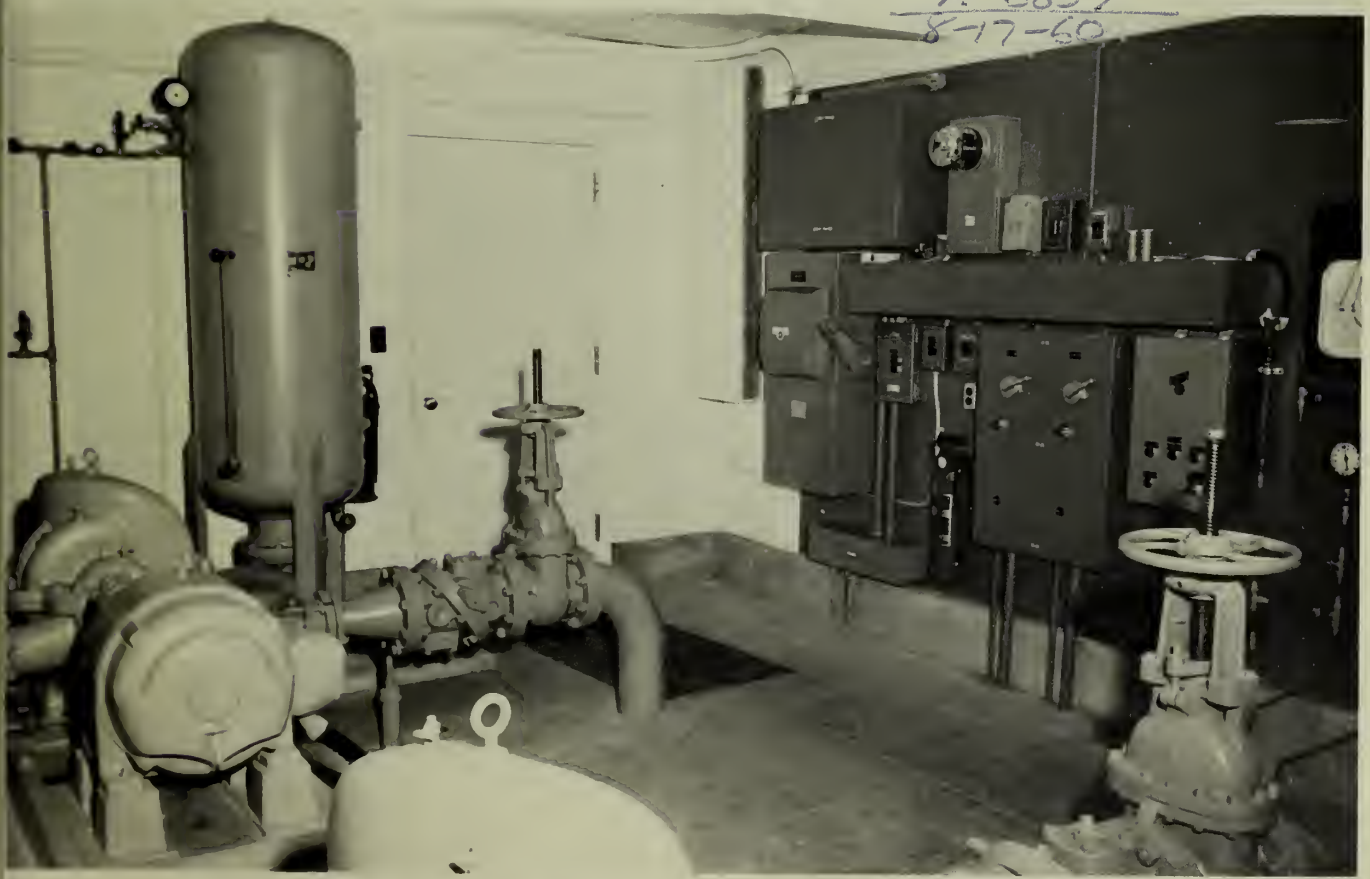
In addition to the foregoing, the policy of investigating dangerous conditions of the Department's facilities and instances of damage where no formal claims were filed, was continued. The former is in line with the policy of accident prevention and the latter for protection in case formal claims are subsequently made.

The investigations in many instances require an engineering study as a part of the study to determine what the Department should do regarding the claim. Remedial work is required in some of the cases.

COPY NEG. X-6269

FOREST KNOLLS TANKS
Gravity and hydro-pneumatic

FROM X-5855 8-17-60 and X-5857 8-17-60



FOREST KNOLLS PUMP STATION
Supplying the tanks shown above

ADDITIONS, BETTERMENTS AND REPLACEMENTS

During the fiscal year this Department handled 66 formal construction contracts of which 9 were carried over from the previous year with all 9 being completed during the period. Fifty-seven new formal contracts were awarded during the year in the amount of $1,940,000. Thirty-nine of the fifty-seven formal contracts awarded were completed, 6 were not completed and 12 were not started prior to June 30, 1960. Four informal contracts were completed at a cost of $5,100. The expenditure, during the fiscal year, on all contracts, including the estimated engineering and inspection costs bid by the Contractor in the Cast Iron Main contracts, totaled $1,735,000.

There were 42 contracts, estimated to cost $880,000, for the construction of distribution mains within San Francisco. The amount of pipe to be laid under the 42 contracts was approximately 75,000 feet, of which 50,492 feet was laid during the 1959-60 fiscal year. Of the pipe actually laid during the year over 95% was cast iron main with the largest part of that being 6" and 8" diameter pipe.

The installation of water mains was carried on during the year in the Western Addition and Diamond Heights Redevelopment areas. This work has been done as soon as the streets were ready for the laying of mains. The Department's costs for mains in these projects is presently estimated at about $750,000 when completed.

Preliminary surveys were continued on the location of the proposed Crystal Springs Pipeline No. 3 between the Baden Pump Station and Guadalupe Valley near Brisbane, which would involve a tunnel approximately 8,000 feet long through the San Bruno mountains. The proposed tunnel portal sites were tied together by triangulation. Two alternate tunnel alignments were computed from the triangulation system.

Contract No. 884 in the amount of $325,998 for the roofing and lining of the 90-year old College Hill Reservoir was the largest single contract awarded during the year. Upon completion of the work the problems of weed particles and contamination in the water in this reservoir's service area will be eliminated, and the water taste and odor will be improved.

A considerable portion of the funds allotted during the year went to the improvement of transmission facilities. Contracts were completed for the replacement of bents on Bay Division Pipeline No. 1; the reconditioning of Crystal Springs

to San Andreas Reservoirs Aqueduct was completed and a section of Bay Division Pipeline No. 1 in Alameda and San Mateo Counties was cleaned and cement mortar lined. The cleaning and lining of pipelines is part of a continuing program of reconditioning which will, when completed, increase the capacity of the Bay Division Nos. 1 and 2 lines by about 15 to 20 million gallons per day. Some of the larger mains in the City Distribution system were cement mortar lined and more of this work is planned.

Sunset Reservoir (South Basin) was begun in April 1958 and completed on February 1960 adding 87.2 million gallons of additional storage within the City. This brings the storage capacity of reservoirs within the City to about 4 days supply at the present rate of consumption. Leakage tests made at the completion of the job showed a total leakage as measured by a hook gauge of 6.5 g.p.m. with 5.5 g.p.m. of this escaping through the underdrains. This leakage is for a gauge reading of 28 feet.

Electrolysis investigations were conducted by Water Department personnel at known corrosive areas along the transmission mains located in Alameda and San Mateo Counties, and along distribution mains in San Francisco where numerous leaks had developed. As a result of the investigations three cathodic protection systems were designed. Two of the systems will be installed to protect the pipeline between Robertson Avenue and Olive Avenue in Newark, Alameda County. The other system will be installed to protect the pipeline through University Village in East Palo Alto. A study of test results on the 30-inch pipeline along San Jose Avenue near Geneva Avenue in San Francisco revealed that an exceptional amount of stray current was flowing on the pipeline in an easterly direction. A drainage bond between the pipe and the negative return of the rail system was located and disconnected to reduce the amount of stray current flowing from the pipeline.

Preliminary work on the San Antonio Dam Project continued during the year. This proposed 17 billion gallon San Antonio Dam Reservoir will impound local runoff and give needed added local storage capacity. The principal problems concerning the project which were worked on during the 1959-60 fiscal year were the feasibility of building the three million cubic yard earthfill dam from a material and construction standpoint and the rights of the City and County of San Francisco to waters of the San Antonio Creek, plus an application to the State Water Rights Board for the unappropriated waters of this creek.

A survey of proposed capital improvements to the water system was made, in connection with budgetary and city planning purposes, for the period beginning July 1, 1960 and ending June 30, 1966. Water Department requirements for improvements

to the system during this period are estimated to be in the neighborhood of $82,000,000, which include the following major projects for which funds are required:

PROJECT	Total Estimated cost to June 30, 1967
San Antonio Dam Project	$ ** 6,568,300
Crystal Springs Pipeline No. 3 (Tunnel and Pipeline)	** 9,475,000
Bay Division Lines to Crystal Springs Lines Connection (Tunnel and Pipeline)	* 10,000,000
Crystal Springs to San Andreas Aqueduct and Pumps	* 2,700,000
Operation and Maintenance Headquarters	
Suburban	1,352,000
City Distribution Division	
Land Purchase and Architectural and Engineering Costs	790,000
Yard Construction	1,250,000
Bay Division Pipeline No. 4	* 22,500,000
Balboa Reservoir-Roof and Lining One Basin and Appurtenances	* 3,000,000

* Projects included in proposed bond issue.
** Portion of these projects included in proposed bond issue, balance from revenue.

In addition to the above projects, the major portion of which are to be financed by bond funds, the normal maintenance, reconstruction and expansion program will be continued including the extension and replacement of mains in City Distribution System, roofing and lining of existing reservoirs in City, cleaning and lining of main transmission lines, the electrolysis program and similar work.

FORMAL CONTRACTS:

1. Additions, Replacements and Alterations to City Pipe System:

In all contracts involving the laying of cast iron pipe or the installation of services, the Contractor is required to obtain the pipe and fittings from the Water Department. The cost of this material, of connections made by the Department's forces, and of engineering and inspection are included in the below stated contract costs.

Extensions and replacements to the Department's distribution system are made under contract, the Department furnishing all necessary pipe, fittings and services material. The value of these items and the engineering and inspection costs are set up in the contract bid sheets in a manner so that the "bid total" includes the cost of furnished items, engineering and inspection, and the summation represents the total cost to the Department for the facility. On some of this class of work the Water Department submits a bid and does the work if its bid is the lowest of those received.

Contract No. 840-R--For the installation of 37 services and the laying of 697' of 6-inch and 2,82' of 8-inch cast iron main in Jamestown Avenue between Ingalls Street and the Stadium. The contract was awarded to B. Miles Thomas Co. on May 12, 1959 and work was completed on September 16, 1959 at a cost of $23,420.05.

Contract No. 863--For the installation of 45 services and the laying of 365' of 6-inch, 2042' of 8-inch and 1969' of 12-inch cast iron main in Burnett Avenue and Perego Terrace. The contract was awarded to Michael Murphy, Jr. on November 25, 1958 and completed on August 4, 1959 at a cost of $30,769.38.

Contract No. 866--For the laying of 1663' of 12-inch cast iron main in Clarendon Avenue between Stanyan Street and Oak Park Drive. The contract was awarded to Fred T. Fairey on December 16, 1958 and completed on July 13, 1959 at a cost of $17,871.30.

Contract No. 878--For the installation of 49 services and the laying of 1700' of 8-inch and 3730' of 12-inch and 600' of 16-inch cast iron main in Trumbull and other streets (Southern Freeway). The contract was awarded to Fred T. Fairey on May 24, 1960 at an estimated bid price of $79,261.70. The contract was 3% completed on June 30, 1960.

Contract No. 882--For the installation of 25 services and the laying of 1286' of 6-inch cast iron main in Mangels Avenue between Detroit and Foerster Streets. The contract was awarded to Louis L. Cima on September 29, 1959 and completed on December 18, 1959 at a cost of $9,634.13.

Contract No. 883-R--For installation of 2 services and the laying of 13.5' of 6-inch and 1770' of 12" cast iron main in Mangels Avenue and in Foerster Street. The contract was awarded to Fred T. Fairey on March 24, 1960 and completed on May 31, 1960 at a cost of $23,526.11.

Contract No. 885--For the installation of 8 services and the laying of 163' of 4-inch, 2109' of 6-inch and 2350' of 8-inch cast iron main in U. C. Student Housing Area and Upper Service Road. The contract was awarded to Associated Pipeline Inc. on September 8, 1959 and completed on November 5, 1959 at a cost of $35,572.37.

Contract No. 886--For the installation of 56 services and the laying of 545' of 6-inch, 1881.5' of 8-inch and 661' of 12-inch cast iron main in Christopher, Forest Knolls and Crestmont Drives. The contract was awarded to Michael Murphy, Jr. on August 11, 1959 and completed on December 22, 1959 at a cost of $25,258.73.

Contract No. 888--For installation of 2 services and laying of 2152' of 16-inch cast iron main in Clarendon Avenue and Laguna Honda Blvd. from Olympia Way to Forest Hill Pump Station. The contract was awarded to Louis L. Cima on May 12, 1959 and completed on July 17, 1959 at a cost of $35,144.15.

Contract No. 889--For installation of 72 services and laying of 1050' of 6-inch, 1800' of 8-inch, and 100' of 12-inch in Forest Knolls Subdivision No. 3. The contract was awarded to Fred T. Fairey on July 21, 1959 and completed on September 24, 1959 at a cost of $19,617.00.

Contract No. 890--For installation of 130 services and laying of 3452' of 6-inch cast iron main in Chestnut, Lombard and Jones Streets. The contract was awarded to Associated Pipeline, Inc. on July 7, 1959 and completed on October 29, 1959 at a cost of $42,741.61.

Contract No. 892--For installation of 6 services and laying of 32' of 4-inch and 2111.5' of 8" cast iron main in Griffith Street, Ingerson and Gilman Avenue and West Access Road. The contract was awarded to B. Miles Thomas on June 30, 1959 and completed September 15, 1959 at a cost of $15,508.38.

Contract No. 896--For laying of 30' of 6-inch and 655' of 8-inch cast iron main in Raymond Avenue between Sawyer and Elliot Streets. The contract was awarded to Associated Pipeline, Inc. on June 30, 1959 and completed on November 17, 1959 at a cost of $5020.30.

Contract No. 897--For installation of 19 services and laying of 486' of 6-inch cast iron main in Underwood Avenue and Bonview Street. The contract was awarded to Fred T. Fairey on August 4, 1959 and completed on October 6, 1959 at a cost of $4,457.07.

Contract No. 898--For installation of 1 service and laying of 409' of 8-inch and 399' of 12-inch cast iron main in Burnett Avenue between Hopkins Street and Dixie Alley. The contract was awarded to Michael Murphy, Jr. on July 28, 1959 and completed on September 16, 1959 at a cost of $6,956.98.

Contract No. 899--For installation of 55 services and laying of 302' of 4-inch and 1009' of 6-inch cast iron main in Laguna, Gough and Russell Streets. The contract was awarded to Michael Murphy, Jr. on August 4, 1959 and completed on October 27, 1959 at a cost of $16,127.16.

Contract No. 900--For laying of 200' of 6-inch and 2850' of 8-inch cast iron main in Carroll and Gilman Avenues and in Fitch Street. The contract was handled by the Department of Public Works and completed on August 11, 1959 at a cost of $16,050.24.

Contract No. 901--For installation of 10 services and laying of 942' of 8-inch cast iron main in Yosemite Avenue and Ingalls Street. The contract was awarded to Michael Murphy, Jr. on August 25, 1959 and completed on October 8, 1959 at a cost of $6,642.99.

Contract No. 904--For installation of 8 services and laying of 612' of 6" cast iron main in Underwood Avenue between Jennings and Ingalls Streets. The contract was awarded to Michael Murphy, Jr. on August 25, 1959 and completed on October 8, 1959 at a cost of $3,409.86.

Contract No. 906--For installation of 4 services and laying of 420' of 8-inch cast iron main in Columbia Square and Sherman Street. The contract was awarded to San Francisco Water Department on October 6, 1959 and completed on October 26, 1959 at a cost of $6,126.41.

Contract No. 910--For installation of 21 services and laying of 2959' of 6-inch cast iron main in Mansell Street between University Street and San Bruno Avenue. The contract was awarded to Louis L. Cima on January 19, 1960 and completed on May 10, 1960 at a cost of $19,039.02.

Contract No. 911--For installation of 25 services and laying 1300' of 6-inch cast iron main in Raymond Avenue West of Sawyer Street and in Orizaba Avenue between Garfield and Shields Streets. The contract was awarded to Associated Pipeline, Inc. on May 24, 1960 at an estimated bid price of $10,744.50. The contract was 15 percent completed on June 30, 1960.

Contract No. 912--For laying 830' of 6-inch cast iron main in Ocean Avenue between 19th Avenue and Junipero Serra Blvd. The contract was awarded to Fred T. Fairey on November 24, 1959 and completed on February 4, 1960 at a cost of $10,044.22.

Contract No. 914--For installation of 7 services and laying of 398' of 6-inch cast iron main in Edgehill Way south of Garcia Avenue. The contract was awarded to Michael Murphy, Jr. on December 29, 1959 and completed on March 23, 1960 at a cost of $3,919.24.

Contract No. 915--For installation of 1 service and laying of 350' of 12-inch cast iron main in Natick Street between Chenery and Arlington Streets. The contract was awarded to Monolithic Pipelines, Inc. on January 19, 1960 and completed on March 18, 1960 at a cost of $5,820.14.

Contract No. 916--For installation of 1 service and laying of 273' of 8-inch cast iron main in Hopkins Street between Corbett and Burnett Avenues. Contract was awarded to Associated Pipeline, Inc. on December 29, 1959 and completed on February 24, 1960 at a cost of $4,313.83.

Contract No. 922--For the laying of 1230' of 20-inch steel main in Portola Drive and Utility Easement. Contract was awarded to Louis L. Cima on May 3, 1960 and completed on June 24, 1960 at a cost of $37,515.30.

Contract No. 923--For installation of 45 services and laying of 200' of 4-inch, 1150' of 6-inch and 1060' of 8-inch cast iron main in Lombard Streets and others. Contract was awarded to Associated Pipeline, Inc. on June 28, 1960 at an estimated bid price of $33,474.00 Work had not been started on the contract as of June 30, 1960.

Contract No. 924--For installation of 199 services and laying of 3400' of 6-inch and 950' of 8-inch cast iron main in Lyon, Broadway and other streets. Contract was awarded to Michael Murphy, Jr. on June 28, 1960 at an estimated bid price of $49,981.00 Work had not been started on the contract as of June 30, 1960.

Contract No. 925--For installation of 116 services and laying of 2000' of 6-inch and 810' of 8-inch cast iron mains in Howth Street and others. Contract was awarded to Michael Murphy, Jr. on June 28, 1960 at an estimated bid cost of $33,204.00. The contract was not started as of June 30, 1960.

Contract No. 935--For reconditioning of 6274' of 16-inch, 1878' of 22-inch and 610' of 30-inch steel pipelines in Phelan and Flood Avenues and in Divisadero and Diamond Streets. The contract was awarded to Pipe Linings, Inc. on March 22, 1960 and completed on June 21, 1960 at a cost of $63,544.42.

Contract No. 936--For installation of 1 service and laying of 18' of 6-inch and 306' of 8-inch cast iron main in 20th and Douglass Streets. Contract was awarded to Associated Pipelines, Inc. on February 9, 1960 and completed on March 18, 1960 at a cost of $5,322.90.

Contract No. 938--For installation of 12 services and laying of 280.5' of 6-inch cast iron main in Rolph Street. The contract was awarded to F. T. Fairey on March 22, 1960 and completed on June 17, 1960 at a cost of $2,702.60.

Contract No. 939--For laying of 235' of 8-inch cast iron main in Custer Avenue at Quint Street. The contract was awarded to Theo. G. Meyer & Sons on February 3, 1960 and completed on February 23, 1960 at a cost of $2,604.97.

Contract No. 945--For installation of 8 services and laying of 500' of 6-inch cast iron main in Montgomery Street between Alta and Greenwich Streets. The contract was awarded to San Francisco Water Department on April 19, 1960 and completed on May 17, 1960 at a cost of $5,435.00.

Contract No. 946--For installation of 1 service and laying of 659' of 6-inch and 54' of 8-inch cast iron main in Armstrong Avenue between Jennings and Ingalls Streets. The contract was awarded to Associated Pipeline, Inc. on May 3, 1960 and completed on May 31, 1960 at a cost of $4,719.50.

Contract No. 947--For installation of 56 services and laying of 361' of 6-inch and 1325' of 8-inch cast iron mains in Los Palmos and Cresta Vista Drives. The contract was awarded to Associated Pipeline, Inc. on May 3, 1960 and completed on June 17, 1960 at a cost of $14,509.55.

Contract No. 948--For installation of 20 services and laying of 1600' of 6-inch and 780' of 8-inch cast iron mains in Diamond Heights area. The contract was awarded to Louis L. Cima on May 17, 1960 at an estimated bid price of $20,945.00. The contract was 15 percent completed on June 30, 1960.

Contract No. 950--For installation of 159 services and laying of 1820' of 4-inch and 2380' of 6-inch cast iron mains in Potrero Heights area. The contract was awarded to Michael Murphy, Jr. on June 8, 1960 at an estimated bid price of $48,460.95. The contract was not started as of June 30, 1960.

Contract No. 951--For installation of 2 services and laying of 1375' of 6-inch cast iron main for McLaren Park Golf Course. Contract was awarded to Michael Murphy, Jr. on June 8, 1960 at an estimated bid price of $15,178.75. The contract was not started as of June 30, 1960.

Contract No. 952--For installation of 73 services and laying of 2250' of 6-inch cast iron main in DeHaro, Rhode Island and other streets. Contract was awarded to Associated Pipeline, Inc. on June 21, 1960 at an estimated bid cost of $25,620.00. The contract was not started as of June 30, 1960

Contract No. 956--For installation of 2 service connections and laying of 800' of 6-inch cast iron mains in Innes Avenue and Ordway Street. Contract was awarded to Associated Pipeline, Inc. on June 21, 1960 at an estimated bid cost of $5,661.90. The contract was not started as of June 30, 1960.

Additions to Supply and Transmission Facilities:

Engineering Division prepared plans and specifications for 20 contracts totaling approximately $1,000,000.00 in 1959-60 of which 7 contracts were not completed as of June 30, 1960. In addition, 3 contracts were carried over and completed from the previous year.

Contract No. 806--For construction of roofing and lining of Sunset Reservoir (South Basin). Contract was awarded to Fruin-Colnon Contracting Co. on April 15, 1958 and completed on February 19, 1960 at a cost of $2,041.776.57.

Contract No. 846--For construction of chain link fence at San Andreas No. 3 Chlorination Building (San Mateo County). Contract was awarded to Colorado Fuel and Iron Company on August 4, 1959 and completed on October 27, 1959 at a cost of $3,018.92.

Contract No. 848-A--Conversion of valves for power operation. Contract was awarded to San Francisco Water Department on December 11, 1959 and completed on May 6, 1960 at a cost of $38,861.43

Contract No. 857--For reconditioning a portion of Crystal Springs-San Andreas Aqueduct. The contract was awarded to Roy Madsen Construction Company on September 1, 1959 and completed on December 20, 1959 at a cost of $52,581.64.

Contract No. 859--For replacing bents -- Bay Division Pipeline No. 1 east of Newark Slough in Alameda County. Contract was awarded to Charles I. Cunningham Company on July 7, 1959 and completed on December 19, 1959 at a cost of $53,462.87.

Contract No. 872--For relocating portion of 30" connecting pipe from San Andreas Outlet No. 3, Millbrae. Contract was awarded to Associated Pipeline, Inc. on March 31, 1959 and completed on June 27, 1959 at a cost of $22,374.58.

Contract No. 884--For construction of roofing and lining - College Hill Reservoir. Contract was awarded to Payne Construction Company on February 2, 1960 at an estimated bid cost of $325,998.00. The contract was 75 percent completed on June 30, 1960.

Contract No. 887-- For service connection for City of Palo Alto, Page Mill Road. Contract was awarded to Associated Pipeline, Inc. on July 7, 1959 and completed on December 1, 1959 at a cost of $32,360.76.

Contract No. 891--Annual Paving Contract for street and sidewalk openings in 1959-60. Contract was awarded to Pacific Pavement Co., Ltd. on June 2, 1959 and completed on June 30, 1960 at a cost of $179,926.00

Contract No. 894--For construction of San Antonio Creek Gaging Station. Contract was awarded to Power Mullen Construction Co. on July 21, 1959 and completed on November 10, 1959 at a cost of $7,543.15.

Contract No. 895--For construction of Forest Knolls and U. C. Housing Tank and Pump Station. Contract was awarded to S & Q Construction Co. on September 29, 1959 and completed on March 18, 1960 at a cost of $56,016.18.

Contract No. 902--For replacing bents on Bay Division Pipeline No. 1 West of Newark Slough. Contract was awarded to Oscar C. Holmes, Inc. on November 3, 1959 and completed on March 28, 1960 at a cost of $68,200.97.

Contract No. 908--For exploratory drilling and auger boring at San Antonio Dam and Reservoir Site, Alameda County. Contract was awarded to Continental Drilling Co. Inc. on September 29, 1959 and completed on December 4, 1959 at a cost of $12,485.50.

Contract No. 909--For final landscaping at Sunset Reservoir - South Basin. Contract was awarded to Bernard Gayman on November 3, 1959 and completed on April 29, 1960 at a cost of $11,382.50.

Contract No. 931--For construction of chain link fence at Irvington Pumping Station (Alameda County). Contract was awarded to El Dorado Fence Co. on January 19, 1960 and completed on April 20, 1960 at a cost of $2,745.43.

Contract No. 932--For rehabilitation of Forest Hills Steel Tank. Contract was awarded to Gores Tank and Steeplejack Co. on April 19, 1960 at an estimated bid cost of $11,525.00. The contract was 35 percent complete on June 30, 1960.

Contract No. 933--For reconditioning portions of Bay Division Pipeline No. 1 in San Mateo and Alameda Counties. Contract was awarded to American Pipe and Construction Co., Pipe Linings Division on December 22, 1959 and completed on May 30, 1960 at a cost of $141,484.00.

Contract No. 937--For construction of sidewalk and bulkhead at University Mound Reservoir. Contract was awarded to Golden West Concrete Co. on March 22, 1960 and completed on June 9, 1960 at a cost of $16,528.16.

Contract No. 941--For rehabilitating portion of Dumbarton Pipeline Bridge. Contract was awarded to John J. Verzello d.b.a. D. E. Burgess Co. on June 20, 1960 at an estimated bid cost of $99,802.50. The contract was not started as of June 30, 1960.

Contract No. 942--For reconstruction of Irvington Pump Station and Chlorination Station. Contract was awarded to C. J. Collins Co. on June 21, 1960 at an estimated bid cost of $26,725.00. The contract was not started as of June 30, 1960.

Contract No. 943--For leak detection. Contract was awarded to Rankin Leakfinder Corp. on April 26, 1960 at an estimated bid cost of $8,860.50. The contract was 45 percent complete on June 30, 1960.

Contract No. 944--For repairs to sluice tunnel, Upper Alameda Creek Diversion Dam (Alameda County). Contract was awarded to Roy Madsen Construction Co. on June 8, 1960 for an estimated bid cost of $4,503.50. The contract was not started as of June 30, 1960.

Contract No. 955--For cleaning and coating steel trestles and pipes on Bay Division Pipeline No. 1 and No. 2. Contract was awarded to D. E. Burgess Co. on June 8, 1960 at an estimated bid cost of $17,041.00. Contract was not started as of June 30, 1960.

INFORMAL CONTRACTS:

The following work, involving amounts of less than $2,000.00 was done under a service order issued after posting a bid invitation and receiving informal bids.

Informal Contract I-143--For Constructing reinforced concrete valve pit near Diamond Street and San Jose Avenue. Contract was awarded to Roy Madsen Construction Co. on December 30, 1959 and completed February 17, 1960 at a cost of $1,898.00.

Informal Contract I-144--For repairs to Calaveras Aerator Building. Contract was awarded to Roy Madsen Construction Co. on April 5, 1960 and completed on May 10, 1960 at a cost of $1,990.00.

Informal Contract I-145--For floor covering Room 709, 425 Mason Street. Contract was awarded to West Coast Carpet and Linoleum on April 14, 1960 and completed on April 18, 1960 at a cost of $179.00.

Informal Contract I-146--For resetting 54" diameter inlet pipe--Sunset Reservoir. Contract awarded to Louis L. Cima on April 26, 1960 and completed on May 6, 1960 at a cost of $1,078.55.

LANDS, LEASES AND PERMITS

LAND TRANSACTIONS:

On June 30, 1959, 62,704.527 acres of land were owned by the Department. This total area is based on the Property Valuation report dated June 30, 1958. It also includes the old Municipal Right-of-Way to San Mateo which had not previously been included in the Annual Report as total land owned and is not shown in the Property Valuation report. There were 21.428 acres purchased and 106.478 acres sold during this fiscal year leaving 62,619.477 acres owned by the Department on June 30, 1960.

Detailed purchases and sales are:

PURCHASES:	ACRES	ACRES
Tract Southeast of Parcel 33, Crystal Springs Watershed Lands, San Mateo Co.(Veckie Property)	9.515	
(Pauline Anderson et ux)	1.400	
Crystal Springs Pipeline #3 R/W San Mateo County(Gregg-Fleming-Lansdale)	7.579	
Par 40 - Hillsborough Tunnel Line Crystal Springs,Sunset Supply; San Mateo Co.	1.024	
Par 196A - Louis Risso Bay Division Pipeline #3	1.910	
SALES:		
Portion Par 48, San Francisco		0.0918
Portion Par 30, Silva Tract, San Mateo Co.		3.5760
Portion Par 55, Lake Merced Lands, San Mateo Co.		0.04
Portion Par 30, Silva Tract, San Mateo Co.		11.601
Portion Par 30, Silva Tract, San Mateo Co.		5,167
Portion Par 30, Silva Tract, San Mateo Co.		27.461
Portion Par 30, Silva Tract, San Mateo Co.		56.201
Portion Par 40, Ravenswood, Belmont R/W, San Mateo Co.		2.34
	21.428	106.478
Net Decrease in Acres	85.050	

CATTLE LEASES:

There were 35 grazing leases and 26 grazing revocable permits covering 31,400 acres in effect at the end of the fiscal year. These leases run an average of five years, generally commencing on November first.

There were 14 grazing leases renewed during the year, all at higher rentals. An indication of the interest shown in these

grazing leases is that a total of 135 bid blanks were mailed out to prospective lesses.

The Department continued in the land management policy of improving grazing lands through the lessee's participation in County Conservation programs. This program includes improved fencing and roads, the development of small impounding dams, reseeding and weed and rodent control.

A total of 48 water collecting ponds, from 2,000 gallons to 3,000,000 gallons capacity, have been developed by lessees.

Rentals from the Department's grazing lands run from $6.00 to $8.37 per acre, depending on the amount of available feed. According to surveys made by the Department of Agriculture these rentals ranged from 40 to 60 percent higher than rentals paid for use of privately owned land.

SHARE CROP AND FARMING LEASES:

The principal activity in this field is the raising of oats, barley and wheat hay, and barley and oat grain, of which the City receives a fourth share under that type of lease, yielding $10 to $15 per acre to the City.

A large acreage is devoted to specialty crops such as vegetables and flower crops which yield from $65 to $85 per acre to the City.

Strawberry acreage yields a rental of $100 to $125 per acre.

Alfalfa lands yield four to five cuttings of hay per season. The rental is one fourth share of the crop. This type of crop acreage is increasing. New leases have been entered into for the coming fiscal year.

Clauses have been included in all new share crop leases for the development of wells to supply irrigation waters. The tenants are to provide the wells with a subsequent reduction in rent to cover the cost.

ROYALTIES AND PERCENTAGE LEASES:

The income from the Skyline Rock Quarry, on a royalty basis, was $19,120.39 this fiscal year as compared to some $16,624.61 the preceding year. The lease expired on May 31, 1960, but occupancy has been continued on a month to month basis during the quarry cleanup period.

The income from the Crystal Springs Golf Course, on a percentage basis was $28,284.41.

COMMERCIAL LEASES AND PERMITS:

There are now over 125 commercial leases and permits covering parking lots, radio station, nursery, research laboratory, mortuary, golf courses, restaurant and other types of commercial enterprises.

In addition to the above, there are over 450 non-revenue permits in effect. These are for non-commercial use of the land or where use of the land is of a limited commercial value and the City charges a $50 fee to cover costs of issuing the permit.

The lessee must obtain all local permits and sufficient Public Liability and Property Damage insurance to protect the City as additional insured.

The San Francisco-Pleasanton Industrial Park Working Committee continued their work in developing an industrial park plan for the Department's 619 acres near Pleasanton. At the end of the year, areas of agreement that could be recommended were reached for most of the problems involved.

There are now 15 permits or leases bringing in an annual revenue of $19,885 from the former Municipal Railway right-of-way in San Mateo County. New permits are in the process of negotiation for additional revenue from this property. These lessees use the property for parking and other types of use in connection with adjacent commercial private enterprise.

Niles Canyon in Alameda County is used for small picnic grounds under 12 permits. These rentals now pay approximately $8,500 per year which is $5,300 more than received from this property five years ago.

WALNUT ORCHARD:

In May of 1959 the two older orchards consisting of 140 acres were leased for a 15-year period. The City will receive 52.61 percent of the annual crop as rental.

Under the lease program a gradual rehabilitation of the old orchard is taking place. A program of "head" pruning and thinning will be carried out to reinvigerate the older trees by inducing new growth and fruiting wood.

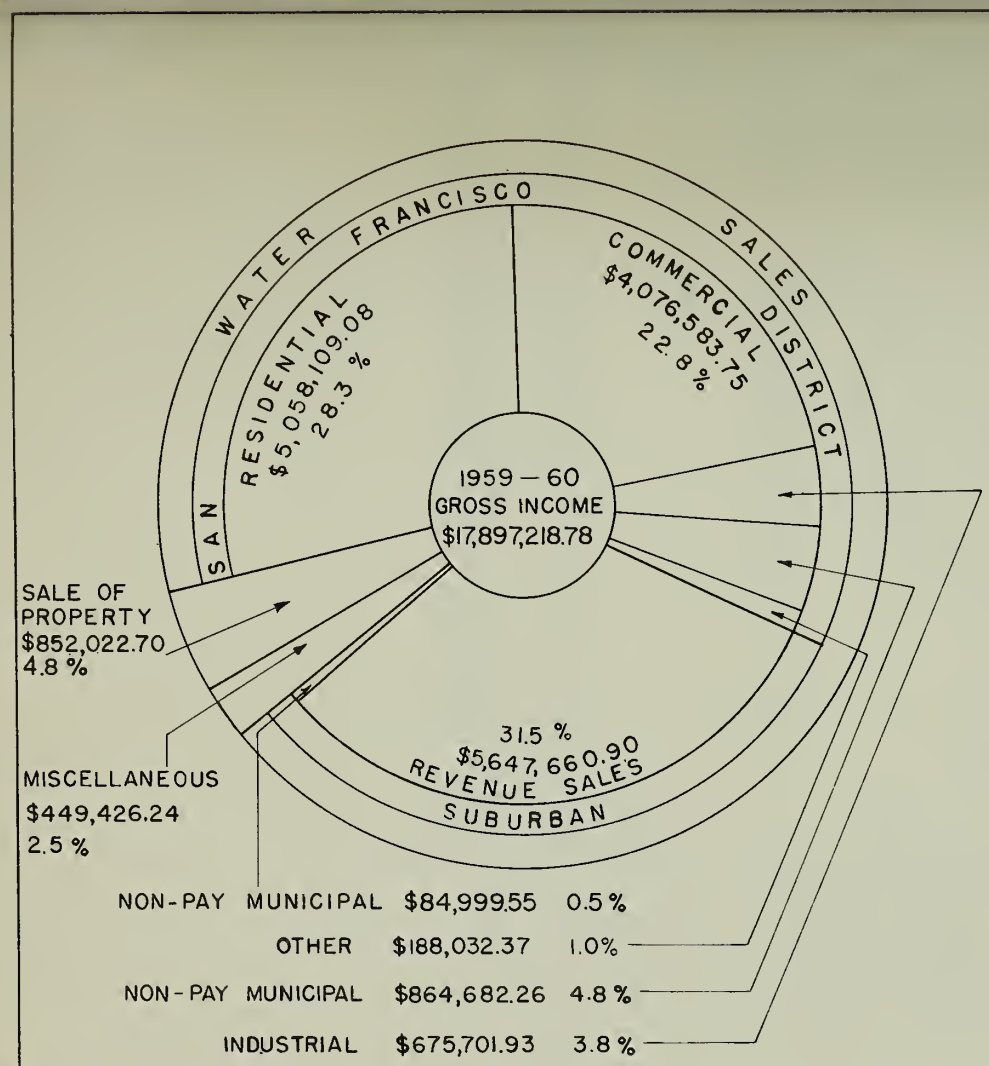
The new 60 acre orchard continues under the old lease until November 1, 1962 at which time it will be included in the lease covering the two older orchards. Until that time the Department will perform the work of pruning, training and spraying of this orchard.

Due to the fact that the orchard is now leased to others the "Walnut Crop and Value During City Ownership" table will be eliminated from this report.

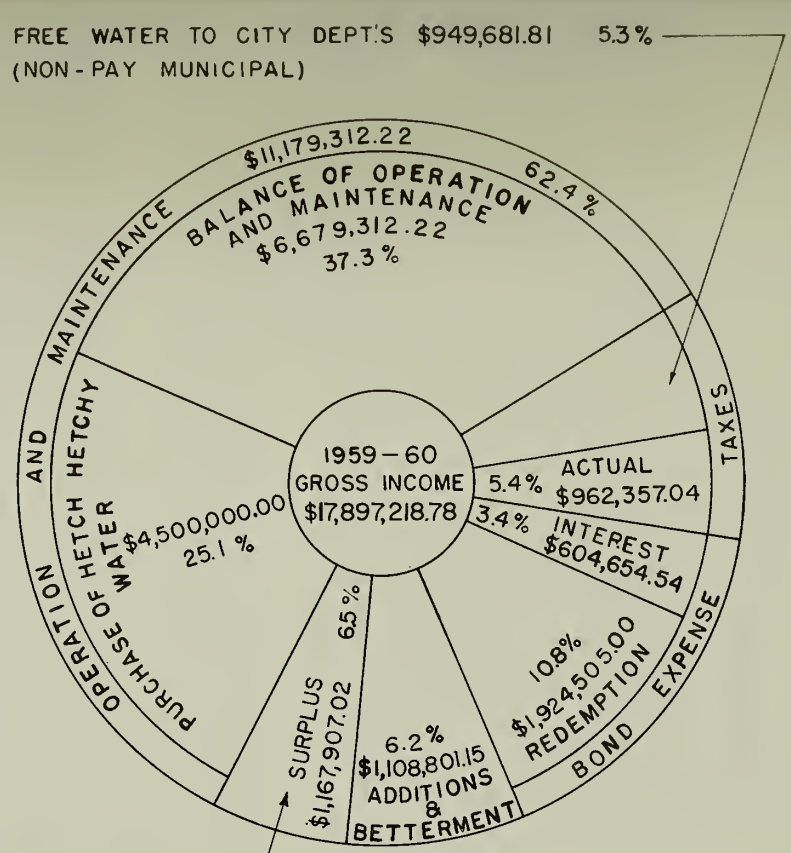
GENERAL:

The preparation of legal descriptions of real property and accompanying maps showing the boundaries and location of property to be leased, disposed of or acquired, totaled some 59 parcels this year. Revocable Permits with appropriate terms and conditions, with accompanying maps, totaling 114 were prepared. This work is done in the Engineering Division where extensive records of the Department's real property are maintained.

Surveys and monumenting of the Department's real property continued throughout the year. This year's work included the Silva Tract, Vecki property (to be purchased), Irvington Pump Station parcel, a part of the Calaveras watershed lands, Bay Division Pipe Lines No. 1 and No. 2 right-of-way from Middlefield Road to Edgewood Road, and from Spring Valley Lane to Pulgas Pump Station. The section between Spring Valley Lane and Middlefield Road had been completed previously.


SAN FRANCISCO WATER SALES DISTRICT
RESIDENTIAL $5,058,109.08 28.3 %
COMMERCIAL $4,076,583.75 22.8 %
1959 – 60 GROSS INCOME $17,897,218.78
31.5 % $5,647,660.90 REVENUE SALES SUBURBAN
SALE OF PROPERTY $852,022.70 4.8 %
MISCELLANEOUS $449,426.24 2.5 %
NON-PAY MUNICIPAL $84,999.55 0.5 %
OTHER $188,032.37 1.0%
NON-PAY MUNICIPAL $864,682.26 4.8 %
INDUSTRIAL $675,701.93 3.8 %

SOURCE OF INCOME
FISCAL YEAR ENDING JUNE-30, 1960


FREE WATER TO CITY DEPT'S $949,681.81 5.3 %
(NON-PAY MUNICIPAL)
$11,179,312.22 62.4 %
BALANCE OF OPERATION AND MAINTENANCE $6,679,312.22 37.3 %
OPERATION AND MAINTENANCE
PURCHASE OF HETCH HETCHY WATER $4,500,000.00 25.1 %
1959 – 60 GROSS INCOME $17,897,218.78
SURPLUS $1,167,907.02 6.5 %
6.2 % $1,108,801.15 ADDITIONS & BETTERMENT
10.8% $1,924,505.00 REDEMPTION BOND EXPENSE
3.4% INTEREST $604,654.54
5.4% ACTUAL $962,357.04
TAXES

NOTE:
NET INCOME AVAILABLE FOR ADDITIONS, BETTERMENTS, RECONSTRUCTION AND REPLACEMENTS WHICH INCLUDES $852,022.70 FROM SALE OF REAL ESTATE AND FIXED ASSETS.

DISPOSITION OF GROSS INCOME
FISCAL YEAR ENDING JUNE-30, 1960

X-1124A

ACCOUNTING AND AUDITING

The accounts of the San Francisco Water Department are maintained strictly in accordance with the requirements of the State Public Utilities Commission and Section 64 of the Charter. The accounts of the Department have been so coordinated with the Controller's system that no encumbrance or expenditure against budget estimates can be incurred without prior certification from the Controller that funds are available. As provided in Ordinance 9.0621, an annual audit of the Department is made as of June 30, by a firm of certified public accountants. The accountant's report is not available at the time the Department's financial statement goes to press, hence there may be minor differences between the two reports due to reclassifications made by the accountants.

Operating Expenses show a net increase of $660,872.64 as shown by the following tabulation:

	Increase	Decrease
OPERATING REVENUE DEDUCTIONS:		
Source of Supply	$ 8,463.50	
Pumping Expenses	35,632.56	
Purification Expenses	51,564.99	
Transmission and Distribution Expenses	79,821.58	
Customers Accounts Expenses	32,076.81	
Administrative and General	22,493.14	
Municipal Taxes, Comparison	*143,234.46	
Miscellaneous Expenses		$ 2,932.60
Taxes Actual	48,263.48	
Provision for Depreciation	242,254.72	
Standby Charge and Purchase of Water		-0-
Net Increase		660,872.64
	$663,805.24	$663,805.24

* Water delivered to Municipal Department offset by taxes.

An analysis of Revenue and Operating Expenses is shown in the following Exhibits "A" through "E".

SAN FRANCISCO WATER DEPARTMENT

DISPOSITION OF SURPLUS

SURPLUS	TO JUNE 30, 1959	YEAR 1959-60	TO JUNE 30, 1960
CONTRIBUTED TO:			
General Fund	$15,992,457.24		$15,992,457.24
Hetch Hetchy Project	4,510,127.21		4,510,127.21
Hetch Hetchy Power	1,228.59		1,228.59
APPROPRIATED FOR:			
Bond Redemption - Spring Valley	29,000,000.00	1,000,000.00	30,000,000.00
" " - 1933 Water Distribution	9,844,594.33		9,844,594.33
1947 Hetch Hetchy Bond Redemption	6,374,573.00	924,505.00	7,299,078.00
Additions and Betterments	31,699,748.94	1,108,801.15	32,808,550.09
" " " - Lake Merced Project	1,250,000.00		1,250,000.00
Purchase of Land	211,175.40	188,954.29	400,129.69
Other Purchases	100,429.29		100,429.29
From Surplus	27,920.41	893,881.48	921,801.89
	$ 99,012,256.41	$4,116,141.92	$103,128,396.33
ADD:			
Initial Excess Earnings - Spring Valley Water Company	4,152,652.24		4,152,652.24
Valuation Municipal Water Works	100,000.00		100,000.00
Grants Earned on Federal Projects	2,358,987.60		2,358,987.60
Contributions in Aid of Construction	165,000.00		165,000.00
Surplus Material and Equipment	373,041.59		373,041.59
Land Sales - Profit	1,414,044.76	$ 852,022.70	2,266,067.46
Bond Premium	840,660.36		840,660.36
Palo Alto Pipe Line	360,271.90		360,271.90
Miscellaneous Additions	398,027.42		398,027.42
Bay Bridge Pump and Supply Line	219,601.79		219,601.79
Revaluation of Water Department Properties	765,951.12	91,365.18	857,316.30
	$ 11,148,239.28	$ 943,387.88	$12,091,627.16
DEDUCT:			
Contribution by Hetch Hetchy for Sutro Reservoir	$ 409,471.41		$ 409,471.41
" to General Fund	15,992,457.24		15,992,457.24
Deficit County Line Water Works	19,189.15		19,189.15
Payment for Purpose of Enabling City to Take Over Properties in Advance	745,274.31		745,274.31
Lands Contributed to City	172,564.67		172,564.67
Contribution to Hetch Hetchy Water Supply	4,430,005.85		4,430,005.85
Miscellaneous Deductions from Surplus	275,549.70		275,549.70
Depreciation due to Revaluation	9,059,955.03		9,059,955.03
" Not Funded (Accrued 3/3/30)	16,119,430.52	361,802.17	16,481,232.69
	47,223,897.88	361,802.17	47,585,700.05
	$62,236,595.81	$4,697,727.63	$67,634,323.44

EXHIBIT "A"
SAN FRANCISCO WATER DEPARTMENT
BALANCE SHEET
JUNE 30, 1960

ASSETS AND OTHER DEBITS

UTILITY PLANT

Water Plant in Service	$108,813,252.60	
Less Reserve for Depreciation	37,783,230.08	$71,030,022.52
Construction Work In Progress- Uncompleted Contracts	698,604.61	
Construction Work In Progress- Completed Contracts(See schedule 9)	3,717,238.47	4,415,843.08
Other Utility Plant		111,925.40
TOTAL UTILITY PLANT		$75,557,791.00

CURRENT AND ACCRUED ASSETS

Cash (See schedule 1)	$8,348,370.16	
Accounts Receivable(see schedule 2) $1,248,399.69		
Less Reserve for Uncollectible Accounts 4,000.00	1,244,399.69	
Interfund Accounts Receivable(see schedule 3)	2,550.65	
Material and Supplies	569,563.88	
Prepayments	-0-	
TOTAL CURRENT AND ACCRUED ASSETS		$10,164,884.38

DEFERRED DEBITS

Clearing Accounts (see schedule 4)	1,803.50	
Budget Allocations to Other Departments (See schedule 8)	16,093.37	
Work in Progress	133,874.32	
Suspense Debits	191,732.05	
Other Deferred Debits	23,357.25	
Encumbrances (Contra)	486,358.46	
TOTAL DEFERRED DEBITS		$ 853,218.95

TOTAL ASSETS AND OTHER DEBITS	$86,575,894.33

LIABILITIES AND OTHER CREDITS

LONG-TERM DEBT

Bonds (see schedule 5)	$16,200,922.00

CURRENT AND ACCRUED LIABILITIES

Accounts Payable (see schedule 6)	$619,897.60	
Interfund Accounts Payable (see schedule 7)	178,625.04	
Matured Long-Term Debt	11,000.00	
Matured Interest	7,672.50	
Customer's Deposits	32,184.83	
Interest Accrued	247,500.00	
TOTAL CURRENT AND ACCRUED LIABILITIES		$1,096,879.97

DEFERRED CREDITS

Suspense Credits	92,911.89	
Advances for Construction	167,992.60	
Orders for Work - Cash Advances	17,964.48	
Orders for Work - Accounts Receivable	139,300.19	
Orders for Work - Service Orders	-0-	
Orders for Work - Work Orders	33,341.90	
Rental Deposits and Payments made in advance	102,924.00	
TOTAL DEFERRED CREDITS		554,435.06

RESERVES

Reserve For Encumbrances (Contra)			486,358.46
Injuries and DamagesReserve			148,158.00
Reserve for Refunds:			
Funded	$360,040.25		
Unfunded	79,272.55		439,312.80
Reserve for Contractor's Damage Claims			13,180.64
Reserve for Unpaid Revolving Fund Checks			2,323.96
TOTAL RESERVES			$1,089,333.86

SURPLUS

Earned Surplus (see detail on Sheet 3)	67,634,323.44
TOTAL LIABILITIES AND OTHER CREDITS	$86,575,894.33

EXHIBIT "A"

S. FR. CISCO WATER DEPARTMENT

C. LATIVE INCOME ST TEMENT

T. E. MONTHS ENDING J E 30, 1960

TITLE	FISCAL YEAR 1959-1960	FISCAL YEAR 1958-1959	1959-1960 INCREASE -DECREASE	MARCH 3, 1930 TO JUNE 30, 1960
OPERATING INCOME				
SALE OF WATER	$16,095,769.84	$15,681,886.64	$913,883.20	$299,920,245.50
OPERATING REVENUE DEDUCTIONS				
OPERATING EXPENSES	$ 5,539,382.90	$ 5,169,028.46	$370,354.44	$ 84,576,010.79
PURCHASE OF WATER	4,500,000.00	4,500,000.00	-0-	57,946,061.92
DEPRECIATION	1,416,187.13	1,173,932.41	242,254.72	32,139,655.77
TAXES-ACTUAL	962,357.04	914,093.56	48,263.48	12,724,325.57
TOTAL OPERATING REVENUE DEDUCTIONS	$12,417,927.07	$11,757,054.43	$660,872.64	$187,386,054.05
UTILITY OPERATING INCOME	4,177,842.77	3,924,832.21	253,010.56	112,534,191.45
OTHER INCOME	1,301,448.94	511,064.13	790,384.81	8,612,982.10
GROSS INCOME	$5,479,291.71	$4,435,896.34	$1,043,395.37	$121,147,173.55
INCOME DEDUCTIONS	690,198.90	866,318.05	-176,119.15	42,682,161.84
NET INCOME TRANSFERRED TO EARNED SURPLUS	$4,789,092.81	$3,569,578.29	$1,219,514.52	$78,465,011.71

EXHIBIT "C"
SAN FRANCISCO WATER DEPARTMENT
SURPLUS
JUNE 30, 1960

SURPLUS, JUNE 30, 1959	$62,933,695.81
ADD: Net Income for 12 Months Ending June 30, 1960	4,7[illegible]
DEDUCT: Property Valuation Adjustment of 1958 Appraisal	91,365.18
SURPLUS, JUNE 30, 1960	$67,[illegible]

EXHIBIT "D"
COMPOSITION OF SURPLUS - CONDENSED
JUNE 30, 1960

INITIAL SURPLUS - MARCH 3, 1930				
Amortization on Contribution (Spring Valley)		$4,152,652.24		
Valuation of Municipal Water Works		100,000.00		
		$4,252,652.24		
LESS: Additional Allowance for Depreciation, March 1, 1920 to March 3, 1930		2,327,916.67	$1,924,735.57	
ADDITIONS:				
Net Income, Mar. 3, 1930 to June 30, 1960		78,465,011.71		
Miscellaneous and Yr. to Yr. Adjustments		5,378,986.82		
Contribution from Hetch Hetchy Power Division		409,471.41		
Contribution from 1947 H. H. Water Bond Fund		244,952.63	$84,498,422.57	
Grants earned on Fed. Public Works Project			2,358,987.60	
Yr. to Yr.-Additions to Surplus-June 30, 1960			1,669,481.49	$90,451,627.23
DEDUCTIONS:				
Contributed to General Fund			15,992,457.24	
Contributed to Hetch Hetchy Water Supply			4,466,014.40	
Lands Contributed to City and County of San Francisco for Streets and Boulevards			172,564.67	
Excess of Adjusted Book Value of Plant Appraisal, December 31, 1937	$1,990,474.91			
Excess of Adjusted Book Value of Plant Appraisal, June 30, 1953	188,291.42	$2,178,766.33		
LESS: Adjusted Book Value of Plant Appraisal, June 30, 1948		83,864.03		
ADD: Adjusted Book Value of Plant Appraisal, June 30, 1958		91,365.18	2,186,267.48	$22,817,303.79
SURPLUS - JUNE 30, 1960				$67,634,323.44

EXHIBIT " "

SAN FRANCISCO WATER DEPARTMENT
COMPARATIVE INCOME STATEMENT
JUNE 30, 1960

TITLE	FISCAL YEAR 1959-1960	FISCAL YEAR 1958-1959	1959-1960 INCREASE -DECREASE	MARCH 3, 1930 TO JUNE 30, 1960
OPERATING INCOME				
SALES OF WATER				
SAN FRANCISCO	$ 9,921,493.15	$ 9,635,622.11	$285,871.04	$230,370,984.60
OUTSIDE SAN FRANCISCO	5,647,660.90	5,168,499.48	479,161.42	51,036,498.64
MUNICIPAL DEPARTMENTS-ACTUAL	76,933.98	71,317.70	5,616.28	1,819,946.46
MUNICIPAL DEPARTMENTS-COMPARISON	949,681.81	806,447.35	143,234.46	16,692,815.80
TOTAL WATER SALES	$16,595,769.84	$15,681,886.64	$913,883.20	$299,920,245.50
OPERATING REVENUE DEDUCTIONS				
SOURCE OF SUPPLY				
OPERATION				
SUPERVISION AND ENGINEERING	78,954.43	82,156.85	-3,202.42	
LABOR AND EXPENSE	271,894.80	136,473.94	135,420.86	
MAINTENANCE				
SUPERVISION AND ENGINEERING	1.05	328,868.05	-105,637.69	
STRUCTURES AND IMPROVEMENTS	148,232.08			
COLLECTING AND IMPOUNDING RESERVOIRS	74,997.23			
LAKE, RIVER AND OTHER INTAKES	340.77	78,686.33	-18,117.25	
SPRINGS AND TUNNELS	2,650.18			
WELLS	9,660.36			
SUPPLY MAINS	46,906.02			
OTHER SOURCE OF SUPPLY PLANT	1,011.75			
TOTAL SOURCE OF SUPPLY EXPENSE	$634,648.67	$626,185.17	$ 8,463.50	$9,753,988.92
PUMPING EXPENSES				
PUMPING LABOR AND EXPENSES	85,567.47	73,259.11	12,308.36	
MISCELLANEOUS SUPPLIES AND EXPENSES	1,709.36	2,193.44	-484.08	
FUEL OR POWER PURCHASED FOR PUMPING	299,255.17	277,497.27	21,757.90	
MAINTENANCE, SUPERVISION AND ENGINEERING	1,539.08		1,539.08	
MAINTENANCE OF STRUCTURES AND IMPROVEMENTS	8,542.35	15,067.09	-6,524.74	
MAINTENANCE OF PRIMARY PUMPING EQUIPMENT	8,265.64	8,155.43	110.21	
MAINTENANCE OF PUMPING EQUIPMENT	5,997.50	2,193.89	3,803.61	
GARDENING	3,122.22		3,122.22	
TOTAL PUMPING EXPENSES	$413,998.79	$378,366.23	$35,632.56	$8,903,469.81

EXHIBIT "E" (Continued)
SAN FRANCISCO WATER DEPARTMENT
COMPARATIVE INCOME STATEMENT
JUNE 30, 1960

TITLE	FISCAL YEAR 1959-1960	FISCAL YEAR 1958-1959	1959-1960 INCREASE -DECREASE	MARCH 3, 1930 TO JUNE 30, 1960
OPERATING REVENUE DEDUCTIONS				
PURIFICATION EXPENSE ACCOUNTS				
Operation, Supervision and Engineering	$ 68,997.96	$ 69,265.27	$ -267.31	
Operation and Expense	72,136.60	17,581.15	54,555.45	
Supplies and Expense	141,035.70	152,785.30	-11,749.60	
Maintenance, Supervision and Engineering	89.62)	(8,904.05	9,026.45	
Maintenance of Structures and Improvements	3,569.81)			
Maintenance of Water Treatment Equipment	14,271.07)			
TOTAL PURIFICATION EXPENSE	$ 300,100.76	$ 248,535.77	$51,564.99	$3,120,789.62
TRANSMISSION AND DISTRIBUTION ACCOUNTS				
Operation, Supervision and Engineering	124,342.32	106,169.13	18,173.19	
Storage Facilities Expense	12,110.61	30,228.48	-18,117.87	
Transmission and Distribution Lines Expense	106,921.07	53,571.35	53,349.72	
Meter Expenses	188,979.17	203,540.92	-14,561.75	
Customer Installations Expense	60,507.88	60,009.23	498.65	
Miscellaneous Expenses	1,933.00	49,028.30	-47,095.30	
Operating Expense-Bryant Street Yard	49,657.23		49,657.23	
Maintenance Supervision and Engineering	12.42		12.42	
Maintenance of Structures and Improvements	82,213.52	71,808.52	10,405.00	
Maintenance of Reservoirs and Tanks	9,851.32	20,626.26	-10,774.94	
Maintenance of Transmission Lines and Canals	37,468.02	60,880.10	-23,412.08	
Maintenance of Services	395,684.63	310,744.52	84,940.11	
Meter Expenses-Maintenance	352.93		352.93	
Maintenance of Miscellaneous Equipment	19,029.75	25,876.83	-6,847.08	
Maintenance of Distribution Mains, Canals	362,643.94	331,200.26	31,443.68	
Maintenance of Services - 20" Nozzle, C.S.	970.57		970.57	
Relocate and Realign Pipe Line		49,172.90	-49,172.90	
TOTAL TRANSMISSION AND DISTRIBUTION	$1,452,679.38	$1,372,856.80	$79,821.58	$17,763,670.39
CUSTOMERS' ACCOUNTS EXPENSES				
Meter Reading Expenses	89,710.39	84,722.74	4,987.65	
Customer Records and Collections Expenses	158,887.47	152,175.37	6,712.10	
Miscellaneous Customer Accounts Expenses	123,712.00	121,460.05	2,251.95	
Inspection and Service	113,518.60	98,909.36	14,609.24	
Bookkeeping Department	239,525.49	235,956.07	3,569.42	
Shipping	26,787.65	26,841.20	-53.55	
TOTAL CUSTOMERS' ACCOUNTS EXPENSES	$752,141.60	$720,064.79	$32,076.81	$14,237,928.87

EXHIBIT "E" (Cont'd) SAN FRANCISCO WATER DEPARTMENT
COMPARATIVE INCOME STATEMENT
JUNE 30, 1960

TITLE	FISCAL YEAR 1959-1960	FISCAL YEAR 1958-1959	1959-1960 INCREASE -DECREASE	MARCH 3, 1930 TO JUNE 30, 1960
OPERATING REVENUE DEDUCTIONS				
ADMINISTRATIVE AND GENERAL				
SALARIES - GENERAL OFFICERS	$ 44,043.52	$ 46,331.28	$ -2,337.76	
SALARIES - GENERAL OFFICE	106,203.34	91,649.94	14,553.40	
GENERAL ENGINEERING	150,895.51	157,002.84	-6,117.33	
PLANTING AND RESOURCES	32,430.54		32,430.54	
OFFICE SUPPLIES AND OTHER EXPENSE	4,633.89	3,299.31	1,334.58	
TELEPHONE SERVICE	50,341.85	45,316.90	5,024.95	
MASON STREET BUILDING - OPERATING	60,446.11	50,494.02	9,952.09	
MUNICIPAL TAXES - COMPARISON	949,681.81	806,447.35	143,234.46	
PUBLIC UTILITIES COMMISSION	115,464.00	107,388.76	8,075.24	
OUTSIDE SERVICES EMPLOYED	6,209.80	15,199.74	-8,989.94	
HYDROGRAPHY	1,790.88	1,049.75	741.13	
INSURANCE-COMPENSATION	40,737.59	23,498.47	17,239.12	
INSURANCE - OTHER	32,328.62	25,559.96	6,768.66	
INJURIES AND DAMAGES	75,548.40	16,793.58	58,754.82	
PENSIONS	242,472.37	294,165.71	-51,693.34	
MAINTENANCE TO TELEPHONE SYSTEM	23,899.24	26,010.31	- 2,111.07	
MAINTENANCE TO GENERAL STRUCTURES	32.82	540.00	-507.18	
MAINTENANCE OF MASON STREET BUILDING	8,075.30	3,014.30	5,061.00	
INVENTORY EXPENSE (MAINTENANCE)	7,208.20	22,654.66	-15,446.46	
MAINTENANCE OF NON-OPERATIVE PROPERTY	985.41	1,345.38	-359.97	
MISCELLANEOUS MAINTENANCE	-39,281.65	-34,309.20	-4,972.45	
S.F.W.D. FORCE ACCOUNT WORK	13,604.61		13,604.61	
EXTRAORDINARY REPAIRS		58,511.50	-58,511.50	
TOTAL ADMINISTRATIVE AND GENERAL	$1,927,742.16	$1,762,014.56	$165,727.60	$30,048,124.34
MISCELLANEOUS EXPENSES:				
DUPLICATE CHARGES - CREDIT	-10,681.52		-10,681.52	
UNCOLLECTIBLE WATER BILLS	11,253.49	10,027.04	1,226.45	306,454.02
PROVISION FOR CONTINGENT REFUNDS	57,485.57	50,978.10	6,507.47	441,584.82
OTHER OPERATING EXPENSES-FIXED CHARGES	15.00	-0-	15.00	
UNDISTRIBUTED OPERATING EXPENSES		-0-		
TOTAL MISCELLANEOUS EXPENSES	$ 58,072.54	$ 61,005.14	$ -2,932.60	$ 748,038.84
TOTAL OPERATING EXPENSES	$5,539,382.90	$5,169,028.46	$370,354.44	$ 84,576,010.79

EXHIBIT "I" (Cont'd.)

SAN FRANCISCO WATER DEPARTMENT
COMPARATIVE INCOME STATEMENT
JUNE 30, 1960

TITLE	FISCAL YEAR 1959-1960	FISCAL YEAR 1958-1959	1959-1960 INCREASE -DECREASE	MARCH 3, 1930 TO JUNE 30, 1960
TOTAL OPERATING EXPENSES	$5,539,382.90	$5,169,028.46	$370,354.44	$ 84,576,010.79
PURCHASE OF WATER	4,500,000.00	4,500,000.00	-0-	57,946,061.92
DEPRECIATION	1,416,197.13	1,173,932.41	242,254.72	32,139,655.77
TAXES - ACTUAL	962,357.04	914,093.56	48,263.48	12,724,325.57
TOTAL OPERATING REVENUE DEDUCTIONS	6,878,544.17	6,588,025.97	290,518.20	102,810,043.26
UTILITY OPERATING INCOME	$4,177,842.77	$3,924,832.21	$253,010.56	$112,534,191.45
OTHER INCOME				
RENTALS INCLUDING CROP SHARES	338,525.08	296,023.99	42,501.09	4,207,816.50
WALNUT ORCHARD SALES	15,626.99	86,277.39	-70,650.40	1,159,532.84
MISCELLANEOUS	8,905.32	21,299.79	-12,394.47	446,394.10
INTEREST EARNED	86,368.85	79,592.49	6,776.36	777,579.85
SALES OF REAL ESTATE AND FIXED ASSETS	852,022.70	27,870.47	824,152.23	2,021,658.81
TOTAL OTHER INCOME	1,301,448.94	511,064.13	790,384.81	8,612,982.10
GROSS INCOME	$5,479,291.71	4,435,896.34	1,043,395.37	121,147,173.55
INCOME DEDUCTIONS				
AGRICULTURAL DIVISION	27,767.41	31,547.75	-3,780.34	533,878.29
WALNUT ORCHARD EXPENSE	14,450.48	76,150.66	-61,700.18	842,860.93
MISCELLANEOUS	21,650.64	93,409.70	-71,759.06	282,986.34
ADJUSTMENTS OF PRIOR YEARS SURPLUS	21,675.83	-0-	21,675.83	21,675.83
INTEREST ON LONG TERM DEBT	604,654.54	665,209.94	-60,555.40	41,000,760.45
TOTAL INCOME DEDUCTIONS	690,198.90	866,318.05	-176,119.15	42,682,161.84
NET INCOME TRANSFERRED TO EARNED SURPLUS	$4,789,092.81	$3,569,528.29	$1,219,514.52	$78,465,011.71

CHARGES OF NON-PAYING MUNICIPAL ACCOUNTS
FOR THE FISCAL YEARS 1958-1959 and 1959-1960

	1958-1959	1959-1960	INCREASE	DECREASE
Hydrants	$ 262,854.00	$352,102.00	$ 89,248.00	
Fire Boats	106.65	115.46	8.81	
Fire Department	23,013.54	24,508.69	1,495.15	
Police Department	4,410.96	3,934.76		$ 476.20
Parks and Playgrounds	217,926.43	219,168.20	1,241.77	
Golden Gate Park - Proper	58,672.52	65,354.34	6,681.82	
Libraries	2,684.44	2,797.04	112.60	
Opera House & War Memorial Bldg.	2,022.98	2,117.97	94.99	
Memorial Museum	758.19	811.03	52.84	
Palace of the Legion of Honor	385.17	345.66		39.51
Aquarium	2,882.10	2,933.76	51.66	
Youth Guidance Center	4,904.82	5,240.70	335.88	
Adult Guidance Center	427.56	352.18		75.38
Purchase of Supplies	1,485.17	603.41		881.76
Exposition Auditorium & Brooks Hall	2,988.39	3,665.15	676.76	
City Planning Commission	96.56	114.18	17.62	
Dept. of Public Works (Public Bldgs.)	91,063.69	106,414.55	15,350.86	
Street Cleaning	10,557.62	10,626.47	68.85	
Street Work & Sewers	284.04	271.92		12.12
Parked Areas & Public Streets	7,311.40	8,155.09	843.69	
Sidewalk Repairs	58.37	34.33		24.04
Building Repairs	2.34	-		2.34
Dept. of Electricity	428.44	605.18	176.74	
Dept. of Public Health	22,529.38	23,611.65	1,082.27	
" " " "	1,498.32	1,599.76	101.44	
Relief Home	16,982.69	17,473.66	490.97	
Public Welfare	332.59	310.36		22.23
Registrar of Voters *	66.89	26.43		40.46
Municipal Railway	9,458.13	9,792.04	333.91	
Track Repairs	7.56	6.88		.68
Disaster Council	79.42	95.52	16.10	
Art Commission	17.21	-		17.21
Water Department #		1,493.89	1,493.89	
Total San Francisco	$ 746,297.57	$ 864,682.26	$ 118,384.69	
County Jail	38,268.56	34,925.76		3,342.80
Hassler Health Farm	6,809.63	6,849.10	39.47	
International Airport	13,715.56	11,787.58		1,927.98
Public Welfare	1,356.03	1,402.46	46.43	
Water Department **		30,034.65	30,034.65	
Total Suburban	$ 60,149.78	$ 84,999.55	$ 24,849.77	
Grand Total	$ 806,447.35	$ 949,681.81	$ 143,234.46	

* Closed November 1959
\# Included in Statement Nov. 19
** Included in Statement Dec. 1959

CHARGES OF PAYING MUNICIPAL ACCOUNTS

FOR THE FISCAL YEARS OF 1958-1959 AND 1959-1960

	1958-1959	1959-1960	INCREASE -DECREASE
SCHOOLS	$70,507.42	$75,696.94	$5,189.52
CHILD CARE CENTERS	1,109.03	1,237.04	128.01
BROOKS HALL*	- 152.14	-	152.14
TOTALS	$71,464.31	$76,933.98	$5,469.67

*Transferred to non-paying account July 1958.

BOND REDEMPTION AND INTEREST

WATER DEPARTMENT

	Redemption			Interest			Total Redemption plus interest
	Spring Valley 1928	H.H. Water Service 1947	Total	Spring Valley 1928	H.H. Water Service 1947	Total	
	$	$	$	$	$	$	$
1960-61	1,000,000	924,505	1,924,505	450,000	99,286.02	549,286.02	2,473,791.02
1961-62	1,000,000	924,505	1,924,505	405,000	84,244.68	489,244.68	2,413,749.68
1962-63	1,000,000	924,505	1,924,505	360,000	68,688.91	428,688.91	2,353,193.91
1963-64	1,000,000	924,505	1,924,505	315,000	52,618.70	367,618.70	2,292,123.70
1964-65	1,000,000	920,328	1,920,328	270,000	36,585.48	306,585.48	2,226,913.48
1965-66	1,000,000	225,328	1,225,328	225,000	23,676.00	248,676.00	1,474,004.00
1966-67	1,000,000	132,682	1,132,682	180,000	15,174.62	195,174.62	1,327,856.62
1967-68	1,000,000	132,682	1,132,682	135,000	7,994.39	142,994.39	1,275,676.39
1968-69	1,000,000	91,882	1,091,882	90,000	814.25	90,814.25	1,182,696.25
1969-70	1,000,000		1,000,000	45,000		45,000.00	1,045,000.00
Due after 6/30/60	$10,000,000	$5,200,922	$15,200,922	2,475,000	$ 389,083.05	$2,864,083.05	$18,065,005.05

ORIGINAL AMOUNTS AND INTEREST:

$ 41,000,000	$12,500,000	$ 53,500,000	4½%	1¼% to 6%

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FOR
APPENDIX TO
REPORT OF SAN FRANCISCO WATER DEPARTMENT

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TABLE NO. 1

SAN FRANCISCO RAINFALL
at
Federal Office Building
(U.S. Weather Bureau Records)

Month	Season 1956-57 inches	Season 1957-58 inches	Season 1958-59 inches	Season 1959-60 inches	Normal 1959-60 inches
July	T	0.01	0.05	T	0.01
August	0.01	T	T	0.02	0.02
September	0.33	1.46	0.04	2.06	0.[illegible]
October	1.14	3.46	0.12	T	1.07
November	0.04	1.13	0.09	T	2.27
December	0.37	3.60	1.48	1.71	4.07
January	2.84	4.38	3.96	4.04	4.03
February	3.58	7.78	4.04	3.57	4.03
March	2.39	8.22	0.30	2.06	2.78
April	1.09	5.47	0.36	1.16	1.49
May	3.19	0.88	0.02	0.85	0.59
June	0.06	0.09	T	T	0.15
TOTALS	15.04	36.48	10.46	15.47	20.64

1959-60 Season 75% of normal

TABLE NO. 2

RAINFALL - WATERSHED STATIONS
(Water Department Records)

Station	Season 1956-57 inches	Season 1957-58 inches	Season 1958-59 inches	Season 1959-60 inches	Normal 1959-60 inches
San Francisco	15.04	36.48	10.46	15.47	20.64
Pilarcitos	38.78	66.58	22.14	31.05	46.07
San Andreas	27.44	54.11	16.38	23.58	36.85
Crystal Springs Upper	22.03	46.20	14.79	19.52	31.03
Crystal Springs Lower	23.63	42.68	13.20	20.15	25.47
Crystal Springs Cottage	17.88	40.49	12.00	16.30	25.31
Lake Merced	18.47	38.60	12.42	14.85	21.02
Pleasanton, City	13.79	27.28	8.40	14.63	20.55
Calaveras	16.94	32.25	12.32	16.71	22.63
Sunol	13.98	28.27	10.46	14.82	20.27
Niles	13.86	28.04	10.00	14.53	19.46
Hetch Hetchy	29.09	44.10	24.41	26.21	34.15
Lake Eleanor	35.66	44.76	22.10	27.15	41.07
Moccasin	24.07	38.68	17.00	23.98	26.86

TABLE NO. 4

RESERVOIR STORAGE
(Exclusive of Hetch Hetchy Sources)

MILLION GALLONS

	1956-57		1957-58		1958-59		1959-60	
	Max. July 1	Min. Feb. 6	Max. April 3	Min. Dec. 14	Max. July 1	Min. Jan. 9	Max. May 4	Min. Nov.11
Calaveras	28,676	17,310	34,245	15,766	29,791	16,445	21,737	17,140
Crystal Springs	17,249	16,047	21,466	16,256	17,810	15,243	18,541	13,973
San Andreas	5,007	3,825	6,239	4,731	5,165	4,068	5,701	4,348
Pilarcitos	616	449	981	687	923	477	891	654
Lake Merced	2,492	2,444	2,636	2,319	2,523	2,404	2,181	2,099
City Reservoirs	311	313	325	296	332	328	319	341
TOTALS	54,351	40,388	65,892	40,055	56,544	38,965	49,370	38,555

TABLE NO. 5

WATER DRAWN FROM HETCH HETCHY AND AUXILIARY SOURCES

MILLION GALLONS

	1956-57	1957-58	1958-59	1959-60
Hetch Hetchy Supply	36,600	30,366	38,101	58,839
Pleasanton Wells and Sunol Filters*	133	2,242	242	-0-
TOTALS	36,733	32,608	38,343	58,839

*No water has been pumped from Pleasanton Wells for use outside the Pleasanton area since April 1949.

TABLE NO. 6

SOURCE OF WATER CONVEYED TO THE PENINSULA DIVISION YEARLY AVERAGE, MILLION GALLONS DAILY

	1956-57	1957-58	1958-59	1959-60
Pleasanton Wells	None	None	None	None
Sunol Filters	0.4	6.1	0.7	"
Calaveras Reservoir	30.7	17.8	43.4	1[illegible].6
Hetch Hetchy Water Supply	93.6	75.7	94.9	150.8
TOTALS	124.7	99.6	139.0	165.4

TABLE NO. 7

WATER DELIVERED THROUGH PIPELINES

Water Transported into San Francisco Consumption Area (1959-60)

San Andreas 54" Pipeline	23.2 M.G.D.
Baden-Merced Branch 30" P/L	6.2 " " "
Crystal Springs 44" P/L	6.2 " " "
" " 60" P/L	24.4 " " "
Sunset 60" P/L	44.4 " " "
Total San Francisco Consumption Area	104.4 M.G.D.

Water Transported to storage:

Crystal Springs to San Andreas	31.4 M.G.D.
Bay Division to Crystal Springs	136.3 M.G.D.

TABLE NO. 8

WATER DELIVERED
AT THE CONSUMERS' METERS

SAN FRANCISCO DISTRICT

	1956-57	1957-58	1958-59	1959-60
Average Active Accounts	152,353	153,085	153,790	154,[illegible]
Number on June 30	152,653	153,516	154,063	154,[illegible]
Metered Delivery (M.C.F.)				
Residential	1,391.1	1,425.2	1,512.6	[illegible]
Com'l & Ind'l	1,958.2	1,971.7	2,030.3	[illegible]
Municipal - Actual	21.2	22.7	25.0	26.5
Municipal - Comparisons	249.1	224.8	254.6	267.8
Total (M.C.F.)	3,619.6	3,644.7	3,822.5	3,950.3
Average (M.G.D.)	74.4	74.9	78.5	80.7

SUBURBAN DISTRICT

	1956-57	1957-58	1958-59	1959-60
Average Active Accounts	695	653	654	683
Number on June 30	666	641	667	699
Metered Delivery (M.C.F.)				
Regular Rates	116.5	122.6	145.9	169.7
Civil Div'n for Resale	1,311.0	1,453.8	1,731.0	1,934.0
Private Utilities "	947.6	979.6	1,185.1	1,218.9
S.F. Municipal-Comparison	*	29.3	33.3	44.3
Total (M.C.F.)	2,375.1	2,585.3	3,095.3	3,366.9
Average (M.G.D.)	48.8	53.1	63.6	68.8

TOTAL SYSTEM

Metered Delivery (M.C.F.)	5,994.7	6,230.0	6,917.8	7,317.2
Average (M.G.D.)	123.2	128.0	142.1	149.5

*San Francisco Municipal Accounts in Suburban area now shown separately.

TABLE NO. 9

AVERAGE DAILY CONSUMPTION SINCE 1865
CONSUMPTION IN MILLION GALLONS PER DAY

Venturi Meter Records

YEAR	M.G.D.	YEAR	M.G.D.	YEAR	M.G.D.	YEAR	M.G.D.
1865	2.4	1885	17.0	1905	34.9	1925	42.6
1870	6.0	1890	20.4	1910	35.6	1928	50.1
1875	11.7	1895	19.9	1915	42.6	1929	52.1
1880	12.7	1900	25.5	1920	36.2	1930	52.1

Note: At noon on March 3, 1930 the San Francisco Water Department acquired title to the operative properties of the Spring Valley Water Company.

Fiscal Year	San Francisco	Sub-urban	Total System	Max. Day	Min. Day	Max. Month	Min. Month
1930-31	49.2	3.1	52.3	66.7	41.3	57.8	47.0
1931-32	49.3	2.8	52.1	65.6	39.6	59.4	47.5
1932-33	46.4	2.7	49.1	60.4	39.9	54.3	44.6
1933-34	47.3	2.6	49.9	64.3	39.1	53.7	45.1
1934-35	48.1	2.4	50.5	65.4	41.3	58.1	46.2
1935-36	52.3	2.5	54.8	68.0	43.0	62.1	50.3
1936-37	55.1	3.4	58.5	70.7	45.7	63.8	51.8
1937-38	53.3	5.0	58.3	72.4	46.7	65.4	53.4
1938-39	56.9	6.4	63.3	84.6	48.5	77.5	54.8
1939-40	59.6	9.0	68.6	89.5	51.6	76.6	60.9
1940-41	60.7	7.3	68.0	90.0	52.0	77.9	60.6
1941-42	63.5	7.7	71.2	94.5	53.1	85.7	61.7
1942-43	69.2	8.6	77.8	106.9	60.2	92.3	68.6
1943-44	76.1	11.4	87.5	109.9	70.4	101.1	76.8
1944-45	79.0	17.9	96.9	134.9	74.7	116.5	85.2
1945-46	83.7	17.2	100.9	131.9	72.9	115.3	88.0
1946-47	83.3	18.6	101.9	135.6	76.5	117.0	86.2
1947-48	81.3	19.7	101.0	138.3	74.2	122.6	88.0
1948-49	83.3	19.9	103.2	138.3	73.3	124.4	86.4
1949-50	83.1	19.6	102.7	139.1	73.8	120.7	88.0
1950-51	82.8	23.0	105.8	147.7	77.3	126.1	88.6
1951-52	82.9	26.2	109.1	154.0	77.6	130.8	92.1
1952-53	88.5	29.9	118.4	166.8	83.7	140.2	99.4
1953-54	89.7	35.2	124.9	197.0	88.0	157.3	107.2
1954-55	91.1	44.6	135.7	190.0	92.5	166.4	110.3
1955-56	91.3	47.8	139.1	217.5	83.0	176.7	112.8
1956-57	89.9	53.1	143.0	224.1	92.7	179.7	112.7
1957-58	94.0	46.5	140.5	211.3	85.3	185.8	111.6
1958-59	100.6	57.0	157.6	246.0	98.5	206.5	117.6
1959-60	104.4	63.4	167.8	274.0	101.7	217.6	126.0

NOTE: Water Department deliveries for consumption in the major inhabited portion of the northerly 47 square miles of San Mateo County are included in the figures in column headed "San Francisco" and are not included in the figures in column headed "Suburban" in Table No. 9.

Fiscal year begins on July 1 and ends June 30.

TABLE NO. 10

AVERAGE DAILY CONSUMPTION BY DISTRICTS

GALLONS

District	1959-60	1958-69	Increase + or Decrease -	% Increase or Decrease
Summit and Forest Hill	1,348,478	1,224,630	+ 123,848	+ 10.1
Stanford Heights	4,014,424	4,265,055	- 250,631	- [illegible]
Sutro	9,667,522	9,438,929	+ 228,593	+ 2.4
Sunset	48,338,896	45,470,786	+2,868,110	+ 6.3
College Hill	8,325,967	7,623,540	+ 702,427	+ 9.2
University Mound	30,589,426	30,516,644	+ 72,782	+ 0.2
Merced Manor*	2,155,519	2,108,386	+ 47,133	+ 2.2
Total City	104,440,232	100,647,970	+ 3,792,262	+ 3.8
Suburban	63,395,063	56,973,866	+6,421,197	+ 11.3
Total Entire System	167,835,295	157,621,836	+10,213,459	+ 6.5

*Merced Manor consumption not measured directly. Any inaccuracies would reflect in suburban and Sunset consumption.

TABLE NO. 11

PEAK DAY CONSUMPTION BY DISTRICTS

GALLONS

District	1959-60	1958-59	1957-58
Forest Hill	5,467,000	4,021,000	1,571,000
Stanford Heights	6,905,000	7,313,000	5,575,000
Sutro	12,370,000	12,010,000	12,879,000
Sunset	64,367,000	68,015,000	56,294,000
College Hill	12,485,000	12,843,000	10,777,000
University Mound	42,364,000	46,455,000	45,473,000
Merced Manor	4,139,000	5,554,000	4,213,000
Total City	137,614,000	135,180,000	121,715,000
Suburban	136,376,000	114,914,000	95,268,000
Total Entire System	273,990,000	245,990,000	211,343,000

TABLE NO. 12

METERS - NUMBER AND SIZE IN SERVICE

SAN FRANCISCO DISTRICT AS OF JUNE 30, 1960

(Compiled from Audit Sheets - May and June)

CLASS OF CONSUMERS	5/8"	3/4"	1"	1½"	2"	3"	4"	6"	8"	12"	TOTAL
Revenue Producing:											
Commercial	19,361	1,080	2,544	2,532	4,261	6	61	371	340	1	30,557
Residential	122,331	1,574	1,274	265	24						125,468
Docks & Ship.	155	12	31	57	96		1	1	6	2	361
TOTAL	141,847	2,666	3,849	2,854	4,381	6	62	372	346	3	156,386
Non-Revenue Producing:											
Commercial	1,181	16	58	26	39	1	3	4	2		1,330
Residential	804	3	5								812
Docks & Ship.					33						33
TOTAL	1,985	19	63	26	72	1	3	4	2		2,175
TOTALS:											
Commercial	20,542	1,096	2,602	2,558	4,300	7	64	375	342	1	31,887
Residential	123,135	1,577	1,279	265	24						126,280
Docks & Ship.	155	12	31	57	129		1	1	6	2	394
	143,832	2,685	3,912	2,880	4,453	7	65	376	348	3	158,561

Total meters in service as of June 30, 1960			158,561
Less: Extra meters in 1,030 Batteries - (2,997 meters - 1,030)		1,967	
Extra meters in 28 Consolidations (80 meters - 28)		52	
Non-Revenue meters (temporarily shut-off)		2,175	4,194
Number of Active Accounts as of June 30, 1960			154,367

NOTE: The above meter count includes 788 Fire Services.At dock and Shipping Office, portable meters used on hydrants as needed(not included above) 12-1½", 25 - 2" meters. At Union Plant of Bethlehem Shipbuilding Corp. 8 - 1½" meters.

PREVIOUS RECORDS	1955-56	1956-57	1957-58	1958-59	1959-60
Total Meters	156,058	156,870	157,771	157,965	158,561
Increase	1,347	812	901	194	596
Idle Meters	2,165	2,374	2,349	1,910	2,175

TABLE NO. 13
METERS - NUMBER AND SIZE IN SERVICE
SUBURBAN DISTRICT AS OF JUNE 30, 1960
(Compiled from Audit Sheets - May and June)

CLASS OF CONSUMERS	5/8"	3/4"	1"	1½"	2"	4"	6"	8"	10"	16"	TOTAL
Revenue Producing:											
Regular Rates	451	24	40	23	199	22	90	71	3	3	926
Airport Use	12	5	9	8	25	1	2	12	-	1	75
TOTAL	463	29	49	31	224	23	92	83	3	4	1,001
Non-Revenue Producing:											
Regular Rates	6	-	-	1	7	-	1	-	1	-	16
Airport Use	-	-	-	-	-	-	-	-	-	-	-
TOTAL	6	-	-	1	7	-	1	-	1	-	16
TOTALS											
Regular Rates	457	24	40	24	206	22	91	71	4	3	942
Airport Use	12	5	9	8	25	1	2	12	-	1	75
TOTAL	469	29	49	32	231	23	93	83	4	4	1,017

Total:	Meters in service as of June 30, 1960		1,017
Less:	Extra meters in 78 Batteries and Consolidations - (380 meters - 78)	302	
	Non-Revenue meters (temporarily shut-off)	16	318
	Number of Active Suburban Accounts as of June 30, 1960		699

NOTE: The above meter count includes 5 Automatic Sprinklers for fire purposes.

PREVIOUS RECORDS:	1955-56	1956-57	1957-58	1958-59	1959-60
Total Meters	1,064	1,028	1,000	1,031	1,017
Increase	-7	-36	-28	31	-14
Idle Meters	11	19	21	23	16

TABLE NO. 14

OFFICIAL METER TESTS

During Fiscal Year Ending June 30, 1960

PERCENTAGE OF VARIATION

	Number Tested									
Percentage	0	.3	.5	1	1.5	2	2.5	3	Total	Ratio
Fast	-	-	-	-	-	-	-	1	1	33.3%
Slow	-	1	1	-	-	-	-	-	2	66.7%
TOTAL	-	1	1	-	-	-	-	1	3	100.0%

PREVIOUS TOTALS

YEAR									
1956	-	-	2	-	-	1	-	-	3
1957	1	-	4	3	-	-	-	-	8
1958	1	-	-	2	-	1	-	-	4
1959	1	-	2	-	2	2	-	-	7

Refunds 1959-60 Account of over-registration - $ 2.26

Increases " " " " under-registration - 0.00

TABLE NO. 15

UNIT COST FOR METER MAINTENANCE

IN SAN FRANCISCO

Year	Meters in use	Total Cost	Cost per Meter	Labor Cost per meter	Other Cost per Meter
1955-56	156,058	$133,630.88	$ 0.86	$ 0.510	$ 0.346
1956-57	156,870	136,237.35	0.87	0.493	0.373
1957-58	157,771	165,421.19	1.05	0.757	0.291
1958-59	157,965	178,796.25	1.13	0.843	0.288
1959-60	158,561	167,619.78	1.06	0.649	0.409

TABLE NO. 16

UNIT COST OF METER INSTALLATION

IN SAN FRANCISCO

	1956-57	1957-58	1958-59	1959-60
Meters Set	1,687	1,879	2,171	2,035
Percent 3/4" and smaller	75.0	76.0	74.7	72.5
Labor (incl. overhead)	$ 9.59	$ 10.36	$ 3.91	$ 8.01
Supervision	0.32	0.32	0.11	0.27
Meter	38.15	31.86	26.58	37.67
Material	3.08	6.22	4.24	7.78
Equipment	0.23	0.33	0.16	0.20
Paving	1.40	1.09	1.04	1.58
Miscellaneous	-	-	.18	-
	$52.77	$ 50.18	$38.22	$55.51

TABLE NO. 17

UNIT COST OF SERVICE CONNECTIONS NEW AND RENEWED IN SAN FRANCISCO

	1956-57	1957-58	1958-59	1959-60
Services installed	2,405	2,857	4,097*	3,657*
Percent 3/4" installed	63.8	62.7	72.0	59.2
Labor (incl. overhead)	$ 56.90	$ 51.70	$ 43.62	$53.34
Supervision	1.89	1.73	1.44	1.78
Material	24.24	21.04	17.15	23.84
Equipment	4.26	3.78	2.79	3.35
Paving	16.67	12.70	16.03	20.25
Miscellaneous	-	-	1.38	1.35
	$103.96	$ 90.95	$ 82.41	$103.91

* Does not include 613 domestic services installed under contracts or 40 fire services. Services installed prior to 1958-59 include new and renewed services installed both by the forces of the Department and under contract.

TABLE NO. 18

STREET MAIN TAPS AND SERVICE CONNECTIONS RECORD

San Francisco District June 30, 1960

TAPS ON STREET MAINS

	Wharf	3/4"	1"	1½"	2"	3"	4"	6"	8"	10"	16"	TOTALS
June 30, 1959	358	160,833	9,335	4,279	2,880	877	509	509	370	17	2	180,968
ADD 1959-60	-4	-400	1,293	161	106	21	20	18	16	0	0	1,232
June 30, 1960	354	160,433	10,628	4,440	2,986	898	529	527	386	17	2	182,200

SERVICE CONNECTIONS

ADD	Services connected to street mains, as above	181,200
	"Distributors", being 1 or more additional meter conn. to service pipes	4,484
	TOTAL connections of record	185,684
	Disconnected services	29,142
	Net metered live services consisting of 156,386 active meters; less 2,019 extra meters in batteries, plus 2,175 services temporarily shut off	156,542

Previous Records:	1956-57	1957-58	1958-59
Active	154,496	155,422	156,055
Shut off	2,374	2,349	1,910
TOTALS	156,870	157,771	157,965
Less extra battery meters	1,843	1,906	1,992
NET	155,027	155,865	155,973

SERVICE INSTALLATIONS

Fiscal Year 1959-60

DISTRICT:	Taps	Distributors	TOTALS
Richmond District	75	7	82
Sunset	138	72	210
North Market & Western Addn.	149	37	186
South Market & Twin Peaks	860	251	1,111
Waterfront	4	0	-4
TOTALS	1,218	367	1,585

Previous Years	Taps	Distributors	TOTALS
1956-57	851	263	1,114
1957-58	1,163	353	1,516
1958-59	1,232	262	1,494

TABLE NO. 19

COMPARATIVE PUMPING COSTS

SAN ANDREAS PUMP	1956-57	1957-58	1958-59	1959-60
Water Pumped, Gallons	12,120,946,000	9,871,835,000	14,856,193,000	11,482,313,000
Electric Power, KWH	12,550,400	10,176,000	15,280,000	12,236,800
Power Cost	$ 94,481.09	$ 78,721.64	$ 110,016.64	$ 94,365.19
Labor Cost	30,320.90	35,278.97	30,998.97	33,861.67
Miscellaneous	690.92	1,627.90	381.63	1,620.06
TOTALS	$ 125,492.91	$ 115,628.51	$ 141,397.24	$ 129,846.92
Cost per Million Gallons	$ 10.35	$ 11.71	$ 9.52	$ 11.31
" " " "per ft.of lift	0.0469	0.0536	0.0425	0.0508

LAKE MERCED PUMP				
Water Pumped, Gallons	8,723,560,000	9,035,800,000	10,809,300,000	16,259,100,000
Electric Power KWH	11,320,580	11,636,214	12,600,000	18,342,000
Power Cost	$ 87,720.08	$ 85,778.76	$ 93,973.79	$ 134,693.55
Labor Cost	33,775.83	38,053.81	37,896.64	38,486.88
Miscellaneous	495.81	629.76	405.15	337.22
TOTALS	$ 121,991.72	$ 124,462.33	$ 132,275.58	$ 173,517.65
Cost per Million Gallons	$ 11.78	$ 13.77	$ 12.24	$ 10.67

TABLE NO. 20
RECORD OF CONSUMERS' INQUIRIES RELATING TO WATER QUALITY

COMPARISON OF INQUIRIES RECEIVED BY DISTRICTS

	1956-57	1957-58	1958-59	1959-60
Francisco Street	0	0	0	5
Stanford Heights	14	53	46	18
Sutro Reservoir	35	87	61	58
Sunset Reservoir	119	220	178	198
Potrero Heights	0	2	7	6
Sunset Lombard	3	7	10	0
College Hill	34	68	97	44
Merced Manor	14	55	29	21
University Mound	37	68	42	36
Forest Hill	5	2	0	0
Presidio Heights	1	0	0	0
Summit	0	10	13	11
McLaren Park	0	1	0	0
Meyers Tank	0	1	0	0
Silver Avenue	0	1	0	0
Wilde Avenue	0	0	0	1
TOTALS	262	575	483	398

TABLE NO. 21
RECORD OF NO WATER, NOISE, ETC.

(a) Those for which the Department was responsible:

	1956-57	1957-58	1958-59	1959-60
Service or main broken	82	60	93	83
S/O at main or meter	8	11	23	4
District temp'y. S/D	0	0	1	4
Service choked	0	0	8	1
TOTALS	90	71	125	92
Percentage	15.8%	15.5%	19.5%	18.5%

(b) Those for which the Consumers were responsible:

Choked House Pipes	131	111	171	93
House Valve Closed	41	36	73	48
" " out of order	111	83	92	80
House Pipe Broken	35	36	63	55
False Reports	161	122	118	129
TOTALS	479	388	517	405
Percentage	84.2%	84.5%	80.5%	81.5%
TOTAL NO WATER	569	459	642	497
Noise	80	85	97	111
Miscellaneous	166	200	286	312

TABLE NO. 22

RECORD OF POOR SUPPLY

AND

LARGE BILL COMPLAINTS

	1956-57	1957-58	1958-59	1959-60
Meter Only:				
Too Small	21	8	12	22
Too Large	-	-	-	7
Service Only:				
Adequate	215	253	421	344
Inadequate	796	843	1,064	841
Meter and Service:				
Too Small	267	464	478	430
Housepiping:				
(Includes valve unless valve only is involved)				
Adequate	42	32	26	36
Inadequate	1,226	1,532	1,949	1,608
Valve Only:	8	0	0	0
Resurveys:	85	64	94	43
Special Inspections:	-	-	-	1,181
Total Number of Inspections:	1,268	1,871	2,069	2,868
Large Bill Complaints:	8,232	9,730	10,212	9,482

TABLE No. 23

LENGTH OF VARIOUS SIZES OF TRANSMISSION LINES IN FEET

	16"	28"	30"	33"	36"	37"	39"	42"	44"	48"	54"	57"
Alameda	395s				122,934							
Pleasanton			27,432									
Niles-Irvington									15,600			
Calaveras									30,570	1,045		
Bay Div'n. #1								3,161s				6,821
" " #2								250r			6,066s	
" " #3												
Alameda Cr.Siphon												
C. S. #1									85,181		358	
C. S. #2			669					100			16,757	
Sunset & C.S.#3												
Sunset Pipeline											337	
San Andreas Br.of Sunset Pipeline												
San Andreas #1									26,850			
San Andreas #2											63,309	
Baden-Merced			31,890		2,260	1,560						
San Andreas Outlet Conn. Pipes			5,024								869	
Palo Alto					28,049							
Pilarcitos Aqued.		7,480		169	648				730			
Stone Dam "			501				1,814		2,106	2,894		
C.S. - S.A. "									30	916	492	
TOTAL	395	7,480	65,516	169	153,891	1,560	1,814	3,511	161,067	4,855	88,188	6,821

s - submarine pipes
r - risers

(Continued)

TABLE N. 23

LENGTH OF VARIOUS SIZES OF TRANSMISSION MAINS IN FEET (Cont'd)

	60"	61"	62"	68"	69"	72"	76"	78"	79"	90"	91"	Total Feet	Miles
Alameda												123,329	23.36
Pleasanton												27,432	5.19
Niles Irvington												15,600	2.95
Calaveras												31,615	5.99
Bay Div'n. #1	102,131											112,113	21.23
" " #2			26,094	78,856			3,867					115,133	21.81
" " #3						127,103		43,184		917			
						5,725*		1,908*		271*		179,108	33.92
Alameda Cr. Siphon					2,942	93				2,972		6,007	1.14
C. S. #1	4,948											90,487	17.14
C. S. #2	84,317							716				102,559	19.42
Sunset & C.S. #3	255							145	14,491		5,192		
									120*		119*	20,322	3.85
Sunset Pipeline	45,211	37,885											
	105*	67*										83,605	15.83
San Andreas Br.of Sunset Pipeline	41	5,907											
		71*										6,019	1.14
San Andreas #1												26,850	5.09
" " #2												63,309	11.99
Baden-Merced												35,710	6.77
San Andreas Outlet Conn.Pipes	1,739	873				1,276						9,781	1.85
Palo Alto												28,049	5.31
Pilarcitos Aqued.												9,027	1.71
Stone Dam "												7,315	1.39
C.S. - S.A. "				356		603						2,397	.45
TOTAL	238,747	44,803	26,094	79,212	2,942	134,800	3,867	45,953	14,611	4,160	5,311	1,095,767	207.53

*Tapers, Valves, Meters and Specials

TABLE NO. 24

PIPE RECORDS
CITY DISTRIBUTION SYSTEM

WROUGHT IRON AND STEEL PIPE

Size	Total Pipe in Ground July 1, 1959	Pipe Laid 1959-60	Removed or Abandoned 1959-60	Total Pipe in Ground June 30, 1960
3/4"	12,037'	0'	0'	12,037'
1	33,893	195	280	33,808
1 1/4	3,728	0	0	3,728
1 1/2	148,355	43	4,471	143,927
2	209,560	492	7,915	202,137
3	26,967	0	1,550	25,417
4	3,886	0	0	3,886
5	804	0	0	804
6	3,809	0	0	3,809
12	6,555	0	0	6,555
13	456	0	0	456
16	25,389	0	0	25,389
20	66,322	1,266	0	67,588
22	25,309	0	0	25,309
23 1/2	3,637	0	0	3,637
24	48,880	0	0	48,880
30	42,553	0	0	42,553
33	2,409	0	0	2,409
36	56,613	0	0	56,613
37 1/2	8,896	0	0	8,896
44	22,178	0	0	22,178
48	* 12,060*	0	0	12,060
60	26,216	0	0	26,216
TOTAL W.I.&S.	* 790,512'	1,996'	14,216'	778,292'

*Correction from last year's report.

TRANSITE PIPE

6"	17,560'	251'	762'	17,049'
8"	24,872	0	0	24,872
TOTAL TRANSITE	42,432'	251'	762'	41,921'

TABLE NO. 24 (Cont'd)

CAST IRON PIPE

Size	Total Pipe in Ground July 1, 1959	Pipe Laid 1959-60	Removed or Abandoned 1959-60	Total Pipe in Ground June 30, 1960
2"	26,940'	178'	400'	26,718'
3	59,727	0	0	59,727
4	510,663	921	4,950	506,634
6	1,848,740	17,583	800	1,865,523
8	1,606,889	20,333	100	1,627,122
10	6,100	0	0	6,100
12	537,626	7,066	265	544,427
16	320,280	2,164	0	322,444
20	22,642	0	50	22,592
22	19,058	0	0	19,058
24	51,793	0	0	51,793
30	5,297	0	900	4,397
TOTAL C.I.	5,015,755'	48,245'	7,465'	5,056,535'
TOTAL ALL	5,848,699'	50,492'	22,443'	5,876,748'
MILES	1,107.708	9.563	4.251	1,113.020

TABLE NO. 25

VALVE RECORDS

June 30, 1960

CITY DISTRIBUTION SYSTEM

Gates		Service Gates		Blow-Offs		Air Valves		Check Valves		Stop Cocks	
2"	138	3"	503	3/4"	10	3/4"	127	1½"	7	5/8"	18
3	253	4	622	1	41	1	143	2	10	3/4	138
4	1334	6	462	1½	267	1½	494	3	1	1	199
6	4402	8	342	2	914	2	324	4	13	1½	929
8	4087	12	14	3	242	3	5	6	37	2	2,586
10	6			4	552	4	0	8	28		
12	951			6	233	6	12	12	4		
16	485			8	124	8	287	16	2		
20	24			12	20						
22	20			16	3						
24	64										
30	23										
36	20										
37½	2										
42	3										
48	1										
	11,813		1,943		2,406		1,392		102		3,900

SUBURBAN SYSTEM
GATES

1"	6	5"	28	12"	97	18"	13	30"	41	48"	12
2"	355	6"	702	14"	1	20"	24	36"	25	54"	6
3"	43	8"	782	15"	1	22"	2	42"	21		
4"	250	10"	32	16"	72	24"	17	44"	4		
									TOTAL		2,534

Butterfly Valves		Sluice Gates	Air Relief & Vacuum Valves	Check Valve	Stop Cock	Miscl.
60"	4	45	932	373	486	35
66"	1					
72"	2					

TABLE NO. 26

CONTRACT DATA 1959-60

Contract No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Complete 6-30-60	Bid Price	Total Cost to 6-30-60
806	Sunset Reservoir-South Basin, Roofing and Lining	C.D.D.	8	Fruin-Colnon Contracting Company	4-15-58	2-19-60	100	$2,154,324.40	$2,041,776.57
840R	6" and 8" C.I. Mains in Jamestown Ave. between Ingalls and the Stadium (Candlestick Park Project)	C.D.D.	5	B. Miles Thomas Company	5-12-59	9-16-59	100	23,975.50	23,420.05
846	Chain Link Fence San Andreas No. 3 Chlorinating Bldg.	Peninsula	3	Colorado Fuel and Iron Corp.	8-4-59	10-27-59	100	2,970.00	3,018.92
848A	Conversion of Valves for Power Operation	Alameda & Peninsula	2	San Francisco Water Department	12-11-59	5-6-60	100	38,861.43	38,861.43
857	Recondition Portion of Crystal Springs to San Andreas Aqueduct	Peninsula	3	Roy Madsen Construction Company	9-1-59	12-20-59	100	49,675.00	52,581.64
859	Replace Bents Bay Division Pipe Line No. 1	Alameda	7	Charles I. Cunningham Company	7-7-59	12-19-59	100	55,555.00	53,462.87
863	6", 8" and 12" C.I. Mains in Burnett Ave. and Perego Terrace	C.D.D.	3	Michael Murphy, Jr.	11-25-58	8-4-59	100	36,602.30	36,769.38
866	12" C.I. Mains in Clarendon Ave.— Stanyan Street to Oak Park Drive	C.D.D.	3	Fred T. Fairey	12-16-58	7-13-59	100	17,626.00	17,871.38
872	Relocating Portion of 30" Connecting Pipe San Andreas Outlet No. 3	Peninsula	5	Associated Pipeline, Inc.	3-31-59	6-27-59	100	22,445.50	22,374.58
878	8", 12" and 16" C.I. Mains in Trumball and other streets (Southern Freeway)	C.D.D.	4	Fred T. Fairey	5-24-60	-	3.	79,261.70	231.60

TABLE NO. 26

CONTRACT DATA 1959-60

(Continued)

Contract No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Complete 6-30-60	Bid Price	Total Cost to 6-30-60
882	6" C.I. Main in Mangels Ave. between Detroit and Foerster Streets	C.D.D.	5	Louis L. Cima	9-29-59	12-18-59	100	$ 10,520.50	$ 9,634.13
883R	12" C.I. Main in Mangels Ave. and in Foerster Sts.	C.D.D.	4	Fred T. Fairey	3-24-60	5-31-60	100	24,515.00	23,526.11
884	Roofing and Lining College Hill Reservoir	C.D.D.	14	Payne Construction Co.	2-2-60	-	75	325,998.00	239,213.45
885	4", 6" and 8" C.I. Mains in U.C. Students Hsg. Area and in Upper Service Road	C.D.D.	5	Associated Pipe-line, Inc.	9-8-59	11-5-59	100	38,166.50	35,572.37
886	6", 8" and 12" C.I. Mains in Christopher, Forest Knolls and Crestmont Drives (Portion of Forest Knolls Subdivision No. 2)	C.D.D.	5	Michael Murphy, Jr.	8-11-59	12-22-59	100	25,324.30	25,258.73
887	Service Connection for City of Palo Alto	Peninsula	1	Associated Pipe-Line, Inc.	7-7-59	12-1-59	100	31,959.00	32,360.76
888	16" C.I. Main in Laguna Honda Blvd. and Clarendon Ave. — Olympia Way to Forest Hill Pump Station	C.D.D.	4	Louis L. Cima	5-12-59	7-17-59	100	40,687.50	35,144.15
889	6", 8" and 12" C.I. Mains in Forest Knolls Sub-division No. 3	C.D.D.	4	Fred T. Fairey	7-21-59	9-24-59	100	23,763.35	19,617.00
890	6" C.I. Mains in Chestnut, Lombard and Jones Streets	C.D.D.	3	Associated Pipe-Line, Inc.	7-7-59	10-29-59	100	41,930.50	42,741.61

TABLE NO. 26

CONTRACT DATA 1959-60

(Continued)

Contract No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Complete 6-30-60	Bid Price	Total Cost to 6-30-60
891	Annual Paving Contract for Street and Sidewalk Openings 1959-60	C.D.D.	1	Pacific Pavement Co., Ltd.	6-2-59	6-30-60	100	$ 183,370.00	$ 179,926.00
892	4" and 8" C.I. Mains in Griffith St., Ingerson and Gilman Aves.	C.D.D.	4	B. Miles Thomas	6-30-59	9-15-59	100	14,529.50	15,508.38
894	San Antonio Creek Gaging Station	Alameda	5	Power Mullen Construction Co.	7-21-59	11-10-59	100	7,164.00	7,543.15
895	Construction of Forest Knolls and U.C. Housing Pump Station and Tank	C.D.D.	6	S and Q Construction Co.	9-29-59	3-18-60	100	56,598.05	56,016.18
896	8" C.I. Mains in Raymond Ave. between Sawyer and Elliot Streets	C.D.D.	4	Associated Pipelines, Inc.	6-30-59	11-17-59	100	5,659.20	5,020.30
897	6" C.I. Main in Underwood Ave. and Bonview Street	C.D.D.	4	Fred T. Fairey	8-4-59	10-6-59	100	4,637.55	4,457.07
898	8" and 12" Mains in Burnett Ave.— Hopkins St. to Dixie Alley	C.D.D.	3	Michael Murphy, Jr.	7-28-59	9-16-59	100	7,930.90	6,956.98
899	4" and 6" C.I. Mains in Laguna, Gough and Russell Streets	C.D.D.	4	Michael Murphy, Jr.	8-4-59	10-27-59	100	15,813.10	16,127.16
900	8" C.I. Main in Carroll and Gilman Aves. and in Fitch Street	C.D.D.		W/O to D.P.W. Contractor Lowrie Paving Company		8-11-59	100	16,934.50	16,050.24
901	8" C.I. Mains in Yosemite Ave. and Ingalls Street	C.D.D.	5	Michael Murphy, Jr.	8-25-59	10-8-59	100	6,729.75	6,642.99

TABLE NO. 26

CONTRACT DATA 1959-60

(Continued)

Contract No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Complete 6-30-60	Bid Price	Total Cost to 6-30-60
902	Replace Bents BDPL No. 1 West of Newark Slough	Alameda	8	Oscar C. Holmes, Inc.	11-3-59	3-28-60	100	$ 64,180.00	$ 68,200.97
904	6" C.I. Mains in Underwood Ave., between Jennings and Ingalls Street	C.D.D.	5	Michael Murphy, Jr.	8-25-59	10-8-59	100	3,507.95	3,409.86
906	8" C.I. Mains in Columbia Square and Sherman Streets	C.D.D.	5	San Francisco Water Department	10-6-59	10-26-59	100	7,181.70	6,126.41
908	Exploratory Drilling and Auger Boring, San Antonio Dam and Res. Site	Alameda	3	Continental Drilling Company	9-29-59	12-4-59	100	12,650.00	12,485.50
909	Final Landscaping at Sunset Reservoir-South Basin	C.D.D.	4	Bernard Gayman	11-3-59	4-29-60	100	10,775.00	11,382.50
910	6" C.I.Main in Mansell Street-University Street to San Bruno Avenue	C.D.D.	6	Louis L. Cima	1-19-60	5-10-60	100	20,179.70	19,039.02
911	6" C.I. Mains in Raymond Ave., and in Orizaba Ave.	C.D.D.	2	Associated Pipe-Lines, Inc.	5-24-60	-	15.	10,744.50	1,840.20
912	6" C.I. Mains in Ocean Ave., 19th Ave. to Junipero Serra Blvd.	C.D.D.	4	Fred T. Fairey	11-24-59	2-4-60	100	10,322.25	10,044.22
914	6" C.I. Main in Edgehill Way, South of Garcia Ave. (Replace 2" Main)	C.D.D.	6	Michael Murphy, Jr.	12-29-59	3-23-60	100	4,398.50	3,919.24
915	12" C.I. Main in Natick Street - Chenery to Arlington Streets	C.D.D.	7	Monolithic Pipelines, Inc.	1-19-60	3-18-60	100	6,094.50	5,820.14

501

TABLE NO. 26

CONTRACT DATA 1959-60

(Continued)

Contract No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Complete 6-30-60	Bid Price	Total Cost to 6-30-60
								$	$
916	8" C.I. Main in Hopkins Street-Corbett to Burnett Aves. (Replacement of existing 6" Main)	C.D.D.	6	Associated Pipelines, Inc.	12-29-59	2-24-60	100	4,722.00	4,313.83
922	20" Steel Main in Portola Drive and Utility Easement (Diamond Heights Subdivision)	C.D.D.	4	Louis L. Cima	5-3-60-	6-24-60	100	36,935.50	37,515.30
923	6" and 8" C.I. Main in Francisco Street, Jones to Leavenworth and other streets	C.D.D.	2	Associated Pipelines, Inc.	6-28-60	-	0	33,474.00	0
924	4", 6" and 8" C.I. Mains in Panama Street, San Diego to Niantic and other streets	C.D.D.	2	Michael Murphy, Jr.	6-28-60	-	0	49,981.00	0
925	4", 6" and 8" C.I. Mains in Stockton Street, North Point to Beach and other streets	C.D.D.	2	Michael Murphy, Jr.	6-28-60	-	0	33,204.00	0
931	Construction of Chain Link Fence-Irvington Pump Station	Alameda	5	El Dorado Fence Company	1-19-60	4-20-60	100	2,803.59	2,745.43
932	Rehabilitate Forest Hill Tank	C.D.D.	2	Gores Tank and Steeplejack Co.	4-19-60	-	35.	11,525.00	3,940.00
933	Reconditioning Portions of B.D. Pipeline No. 1, San Mateo and Alameda Counties	Peninsula and Alameda	2	American Pipe and Construction Co. (Pipe Linings Division)	12-22-59	5-3-60	100	142,960.00	141,484.00

TABLE NO. 26

CONTRACT DATA 1959-60

(Continued)

Contract No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Complete 6-30-60	Bid Price	Total Cost to 6-30-60
								$	$
935	Reconditioning 16", 22" and 30" Steel Mains in Phelan and Flood Aves., Divisadero and Diamond Streets	C.D.D.	1	Pipe Linings, Inc.	3-22-60	6-21-60	100	66,725.00	63,544.42
936	8" C.I. Main in 20th and Douglass Streets	C.D.D.	4	Associated Pipe Lines, Inc.	2-9-60	3-18-60	100	6,698.00	5,322.90
937	Construction of Sidewalks and Bulkheads - University Mound Reservoir	C.D.D.	6	Golden West Concrete Company	3-22-60	6-9-60	100	16,934.00	16,528.16
938	6" C.I. Main in Rolph St. (Crocker-Amazon Subdivision No. 3)	C.D.D.	5	F. T. Fairey	3-22-60	6-17-60	100	2,990.50	2,702.60
939	8" C.I. Main in Custer Avenue at Quint Street	C.D.D.	5	Theo. G. Meyer and Sons	2-3-60	2-23-60	100	2,687.60	2,604.97
941	Rehabilitate and Paint Bridge-Trestles, B.D. Pipelines Nos. 1 and 2	Peninsula	4	John J. Verzello, d.b.a. D.E.Burgess Company	6-28-60	-	0	99,802.50	-
942	Reconstruct Irvington Pump Station and Chlorination Station	Alameda	2	C. J. Collins Co.	6-21-60	-	0	26,725.00	-
943	Leak Detection - Survey Area	C.D.D.	1	Rankin Leakfinder Corp.	4-26-60	-	45.	8,860.50	4,046.62
944	Upper Alameda Creek Diversion Dam - Repairs to Sluice Tunnel	Alameda	2	Roy Madsen Construction Company	6-8-60	-	0	5,503.50	0

TABLE NO. 26

CONTRACT DATA 1959-60

(Continued)

Contract No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Complete 6-30-60	Bid Price	Total Cost to 6-30-60
								$	$
945	6" C.I. Main in Montgomery Street-Alta Street to Greenwich Street	C.D.D.	4	San Francisco Water Department	4-19-60	5-17-60	100	5,435.00	5,435.00
946	6" C.I. Main in Armstrong Avenue-Jennings to Ingalls Streets	C.D.D.	4	Associated Pipelines, Inc.	5-3-60	5-31-60	100	4,853.00	4,719.50
947	6" and 8" C.I. Main in Los Palmos and Cresta Vista Drives	C.D.D.	3	Associated Pipelines, Inc.	5-3-60	6-17-60	100	15,637.00	14,509.55
948	6" and 8" C.I. Mains in Diamond Heights Area	C.D.D.	3	Louis L. Cima	5-17-60	-	15.	20,945.00	3,215.47
950	4" and 6" C.I. Mains in Potrero Heights Area	C.D.D.	2	Michael Murphy, Jr.	6-8-60	-	0	48,460.95	-
951	6" C.I. Irrigation Service Mains for McLaren Park Golf Course	C.D.D.	2	Michael Murphy, Jr.	6-8-60	-	0	15,178.75	-
952	6" C.I.Main in DeHaro, Rhode Island and other streets	C.D.D.	2	Associated Pipelines, Inc.	6-21-60	-	0	25,620.00	-
953	Annual Paving Contract 1960-1961	C.D.D.	1	Pacific Pavements, Company, Ltd.	5-24-60	-	0	214,275.00	-
955	Cleaning and Coating Steel Trestles and Pipes, B. D. Pipelines Nos. 1 and 2	Peninsula	3	D. E. Burgess Company	6-8-60	-	0	17,041.00	-
956	6" C.I. Main in Innes Avenue and in Ordway Street	C. D. D.	2	Associated Pipelines, Inc.	6-21-60	-	0	5,661.90	-

ORGANIZATION AND PERSONNEL

EXECUTIVE

J. H. Turner	General Manager & Chief Engineer
G. D. Burr	Assistant General Manager & Chief Engineer

RESOURCES & PLANNING

S. M. Tatarian *	Senior Civil Engineer

ENGINEERING DIVISION

H. C. Medbery	Senior Civil Engineer
C. A. Lauenstein	Construction Engineer
J. P. Cava	Office Engineer

CITY DISTRIBUTION DIVISION

O. G. Goldman	Superintendent
A. G. Zecher (Retired June 1, 1960)	Assistant Superintendent

PENINSULA DIVISION

J. E. O'Marie	Superintendent
W. S. Firmstone	Assistant Superintendent

ALAMEDA DIVISION

C. L. Hughes	Superintendent
R. L. Borame	Assistant Superintendent

WATER PURIFICATION

H. W. Tracy	Engineer of Water Purification

COMMERCIAL DIVISION

J. J. Lyons	Manager
J. W. Cooper	Assistant Manager

LANDS AND AGRICULTURE

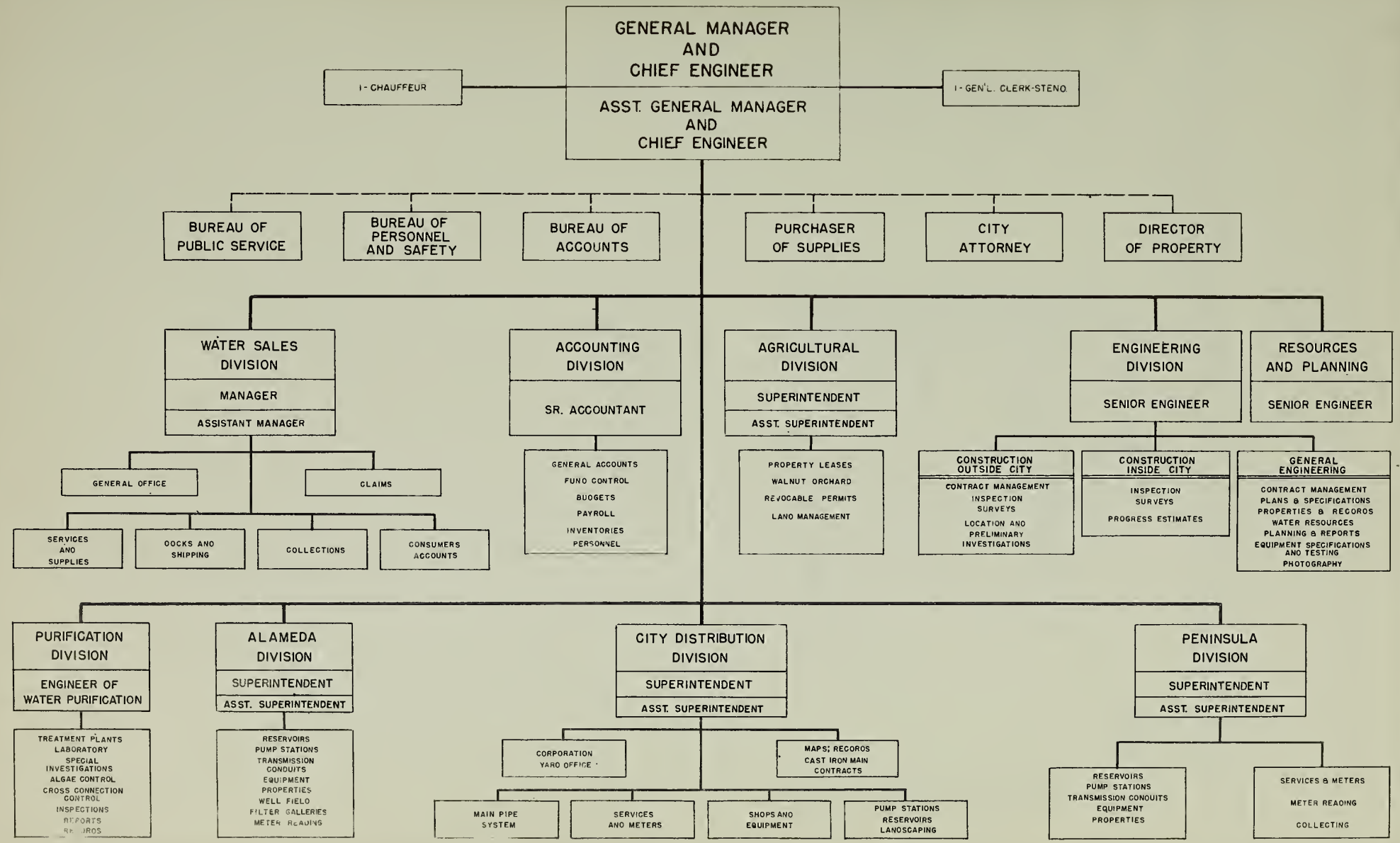
J. G. Brucato	Superintendent
A. Spotorno	Assistant Superintendent

ACCOUNTS

Z. H. Taylor	Senior Accountant

* Transferred to Department of Public Works April 16, 1960.

CITY AND COUNTY OF SAN FRANCISCO
PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT
ORGANIZATION CHART



R E T I R E D

1959 - 1960

During the past fiscal year, the following employees were retired from service and recognition is given to their faithful service in the organization:

Employee	Classification	Years of Service
Joseph W. Myatt	Compressor Operator	4
Elton Jimenez	Assistant Investigator	29
Cathryne A. O'Brien	General Clerk-Stenographer	36
Dominick Morris	Pipe Caulker	19
Edward D. McKenna	Telephone Operator	28
Ephe Bottimore, Sr.	Ranger	36
Guiseppe Motta	Laborer	14
Christian C. Reese	Serviceman's Assistant	31
Thomas O'Rourke	Laborer	30
Fred Luginsland	Compressor Operator	34
William Doolittle	Painter	30
Joseph Kappeler	Gateman	51
Albert G. Zecher	Assistant Superintendent, CDD	25
Marcus Culhane	Gateman	18

I N M E M O R I A M

Thomas Carmona	August 28, 1959	12